CAPSTONE SCRIPT

Good morning. My name is Greg Bolan. Today, I am going to walk you through the good, the bad, and the ugly of rising prescription drug utilization in the US.

I felt that Charles Dickens summed up my Capstone with his famous novel, A Tale of Two Cities. Dickens characterized the theme of his book in one swift statement: “It was the best of times; it was the worst of times” during the mid-18 hundreds.

My Capstone centers around three fundamental questions using Dickens’ theme for A Tale of Two Cities.

Firstly, I wanted to know is now the best time to invest in the Drug Distribution Channel. A little foreshadowing here but note that Amazon announced its entrance into the home delivery pharmacy market with a drug discount program back in November.

Secondly, I wanted to know if increasing life expectancy in the US will lead to greater prevalence of chronic disease? Keep in mind that the presence of *multiple* chronic conditions is known as co-morbidity and I may use this term throughout the presentation.

Lastly, is now the worst of times for elderly patients consuming prescription drugs?

And now on to sources. As you can see, I used multiple sources for my data. Most of these sources are government sites, which yielded mostly excel files that I cleaned thoroughly and then fed into Tableau.

Now, in a very abbreviated fashion, let’s walk through the Drug Distribution Channel. As you can see, a drug must pass through several layers before making it to the patient. There are a lot of interesting and funky transactions that take place but for the purposes of this presentation, we’ll stay away from things like Average Manufacturing Price and Wholesale Acquisition Costs.

You can see that Drug Wholesalers and Pharmacies are the predominant intermediaries between the drug manufacturer and the patient. So for the purposes of this presentation, we are going to focus on…you got it…drug wholesalers, pharmacies, and of course the patient.

I would like to call out the wholesalers given the fact that unlike pharmacies, there is a virtual oligopoly of players that control 90%+ of drug wholesaler revenues. They are McKesson, AmerisourceBergen, and Cardinal Health, all of which are publicly traded on the stock exchanges. So a lot of interesting trends on drug distribution can be gleaned from these companies’ quarterly filings and earnings conference calls.

Moving on to the characteristics of sales growth for drug wholesalers and pharmacies, you can see that following around 2006, drug wholesalers’ revenue growth became more correlated with that of pharmacy revenues.

This was no accident. In fact, for years, drug manufacturers would tell wholesalers that they were about to raise prices and then the wholesalers would buy up a bunch of inventory and then sell the drugs after the prices were raised; this is what I like to call pricing arbitrage. Well for various reasons, the federal government got involved and this pricing arbitrage strategy was for the most part converted to a fee for service arrangement whereby manufacturers pay wholesalers a fixed fee for things like inventory management.

On this next chart, really all I want you to see is that sales growth for the drug wholesalers and pharmacies is highly defensible when compared to US economic fluctuations. You can see that in the midst of the recession in the 2007 to 2009 timeframe, US consumers spent way less on retail goods but for the drug wholesalers and pharmacies, sales growth remained about constant.

In fact, you can see on this next slide that growth in pharmaceutical expenditures in the US is highly defensible when compared to US GDP growth. Even in the midst of a mild recession due to COVID in 2020, growth in pharmaceutical expenditures remains constant and in fact should outpace US GDP growth for years to come.

In my opinion, this makes the drug distribution channel highly attractive for a company like Amazon looking to diversify its revenue stream into the future.

Now let’s jump into demographics info within the US. As you can see, life expectancy within the US continues to rise and is expected to rise for many years to come.

And there are negative consequences for an aging population, such as the increasing prevalence of chronic disease. Chronic diseases are defined broadly as conditions that last 1 year or more and require ongoing medical attention or limit activities of daily living or both. Chronic diseases such as heart disease, cancer, and diabetes are the leading causes of death and disability in the United States.

You can see that by 2030, chronic conditions are expected to rise to around 50% of the US population. Think about that for a second. Nearly 180 million people will have some form of chronic condition by 2030. That’s just an astonishing figure and one that jeopardizes not only the health of Americans but also means greater use of maintenance drugs especially for patients with co-morbid conditions.

And in fact you can see on the next slide that folks over the age of 65 utilize drugs far more than the other age cohorts. In fact, 90% of folks over the age of 65 have prescription drug expenses. Also you can see that the median annual prescription costs are nearly 10x’s greater than the overall median cost. This is especially worrisome given the fact that most Americans live on a fixed income in their twilight years.

So beyond greater drug utilization, why are drugs so much more expensive for an aging population? The answer lies in the type of drugs patients take when affected by chronic conditions. I’ve learned that broadly speaking there are two types of drugs: specialty drugs and traditional drugs. Specialty drugs are often used for folks with chronic conditions like cancer, while traditional drugs are used for more acute conditions like infections.

To give you an idea on the pervasiveness of specialty drugs, you can see that between 2011 and 2016, 73% of the growth in overall drug spending was due to specialty medicines. Moreover, the average cost for just one of these drugs was about $20,000 greater than the median household income in 2017.

And for the last chart, you can see that the US is where far more co-morbid chronic conditions exist and also where costs are a barrier for elderly patients who need care for these chronic conditions. This dataset came from the Commonwealth Fund and really I think does a good job showing just how far out of whack the US is when compared to other countries. So for every 100 elderly patients surveyed in the US, 36 said that they have three or more chronic conditions. And of those 36 patients, 23 say they are having problems getting care because of cost. As you can see, the US is by far the country with both the highest frequency of chronic disease and where cost is the highest barrier for care. I, personally, think this is a sad theme for patients in the United States.

So in conclusion, I have found that investing in the Drug Distribution Channel is probably a wise move especially for a company looking to diversify its revenue streams. I also found that life expectancy should continue rising and chronic disease should become more prevalent. And lastly, I found that patients in the United States will likely face sometimes insurmountable costs as they grow in age.

And with that, I’ll stop for any questions you have.