UNLOCKING THE FUTURE OF CAPITAL MARKETS

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AGING POPULATIONS CHASING INCOME

- Savings turns to yield-based income
- Fixed income and real estate investments are favored

URBANIZATION/ RE-URBANIZATION

- People move to the cities ... *and* back to the cities
- Millennials prefer renting over buying

TECHNOLOGY AND INFRASTRUCTURE

- Advances may make infrastructure excessive
- Current infrastructure vulnerable to technological obsolescence

MANUFACTURED GOODS AND COMMODITIES

- Oversupply of goods leads to lower prices
- Smarter consumption = oversupply of commodities

For all intents and purposes, it is impossible to accurately predict the future. It is, however, possible to determine the direction the future is headed. Seventy-six years ago, the New York World's Fair opened and promised a glimpse at "the World of Tomorrow." At the Fair's opening, RCA introduced the public to a relatively new and unknown technology called television. The *New York Times* yawned, saying "The problem with television is that people must sit and keep their eyes glued on a screen; the average American family hasn't time for it." Today, we are no better at specific predictions about the future, but we are much better at spotting trends and recognizing where they can lead. Capital markets, like the future, are essentially unpredictable and capital markets also do not exist in a vacuum. They don't now, and they never have. Like a sort of financial physics, the world exerts a force on capital markets at least equal to the force that capital markets exert on the world. So when we broaden our gaze to include happenings outside of the investment realm, we can identify forces that will affect them. Toward that end, this paper will examine four of these current forces that I believe will have a great influence on the future of capital markets.

FOUR FORCES

There are four current trends that I believe will have major influences on capital markets in the coming years:

1. **Demographics** – Seismic demographic shifts are occurring around the world, and aging populations are increasingly looking for income.
2. **Urbanization and Re-urbanization** – People are also on the move. In the emerging world, what had been primarily rural populations are now moving into urban areas for employment opportunities and a chance at a middle-class lifestyle. In the developed world, the trend of suburban living is reversing, with potentially dramatic impacts.
3. **Structural Oversupply of Commodities and Manufactured Goods** – There seems to be too much stuff. The global economy appears to have developed a structural excess of both manufactured goods and commodities, which could have significant influences on inflation expectations for years to come.
4. **Technology and Infrastructure** – Finally, advances in technology have the chance of drastically altering our relationship with our infrastructure system.

DEMOGRAPHICS – EVERYONE'S CHASING INCOME

Populations around world are aging. In the United States, a generation of baby boomers are now in their 50s and 60s and make up around one-quarter of the U.S. population. Though, this aging trend is not just a U.S. phenomenon. It is true in Japan, Europe, and even China…anywhere you find a rapidly aging population and a shrinking workforce. More and more people are winding down their working lives, working fewer hours, and moving towards and into retirement.

This means that there are an increasing number of people who have accumulated assets as part of long-term savings programs. However, as these aging populations make the transition towards retirement, their priorities change. They move from accumulating assets to supplementing an income. Amassing a retirement "nest egg" becomes living off that nest egg. Working for your money transitions to making your money work for you. This portends an excess amount of savings looking for fixed income and other yield assets.

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I feel that this creates a structural overhang in capital markets. With increased amounts of capital chasing the same assets, I believe that yields on bonds, real estate, and similar yield-producing assets are likely to be structurally lower than they would have been. Of course, this puts pressure on investors looking for income and yield.

The answer of where to find income will differ for investors. Some will seek out bond funds, others diversified-income strategies. But, the effects aren't just a problem for individual investors and retirees; they could spread throughout capital markets. Even those people who look to annuities or guaranteed products coming from insurance companies will be affected. Insurance companies will also need yield-based assets to fund those annuities.

From the point of view of capital markets, it won't really make much difference if investors choose funds or annuities. This is purely a matter of intermediation. The key point is still an underlying demand for bonds, real estate, and other income-producing assets.

URBANIZATION AND RE-URBANIZATION: TO THE CITIES... *AND* BACK TO THE CITIES!

People are on the move. In emerging markets like China, we have seen a population shift over the last few decades from rural to urban areas. Like a modern day replaying of the Industrial Revolution, workers in emerging countries are making the transition from rural agricultural jobs to manufacturing jobs in the cities. In developed economies, though, we are seeing something different. The post-World War II trend of populations moving to suburban areas seems to be reversing. A "re-urbanization" trend seems to be taking hold as people eschew the suburbs for revitalized urban centers. Though this trend is very hard to predict, re-urbanization appears to be related to the priorities of younger people. These millennials – generally defined as those born in the late 1980s and 1990s – are the descendants of the baby boomers, and they are shunning the suburban lifestyle the boomers have loved.

Millennials seem to have a preference for online interactions, and socializing has moved in that direction. Social interaction now occurs in ways that make an urban lifestyle preferable. Whether it is music venues, sports arenas, bars, clubs, or coffee shops, that urban environment seems to be where younger people want to be, rather than out in the suburbs. Some might say that this is a short-lived trend that will end when young people start having families, but I suspect that's forcing one generation's preferences onto another.

Consider though that there are demographic currents here as well (Figure 1). Data from a 2010 report from Pew Research Center showed that the percentage of people 18 years and older in the United States who were married went from 72% in 1960 to 52% in 2008. People are also waiting longer to get married. The median age at first marriage is now 27 for women and 29 for men, up from age 20 for women and 23 for men in 1960.[1] And women are waiting longer to have children; the U.S. Department of Health and Human services reported that the mean age of a mother having her first child was 25.8 in 2012. That's up from a mean age of 21.4 in 1970. So that engine of marriage and children that drove suburban growth may itself be slowing.

The financial crisis and recession over the past decade could be part of the problem for this shift in attitude towards the suburbs. Though, I don't think this is just the impact of the financial crisis. I think if it were just the financial crisis, the effects would dissipate in a decade or so. Rather, I think there is more behind this than financial crisis. I think we are witnessing lifestyle shifts as well, tending to push people towards wanting the urban environment. A fundamental change of behavior and a change of preferences are underway.

[1] Pew Research Center, 2014

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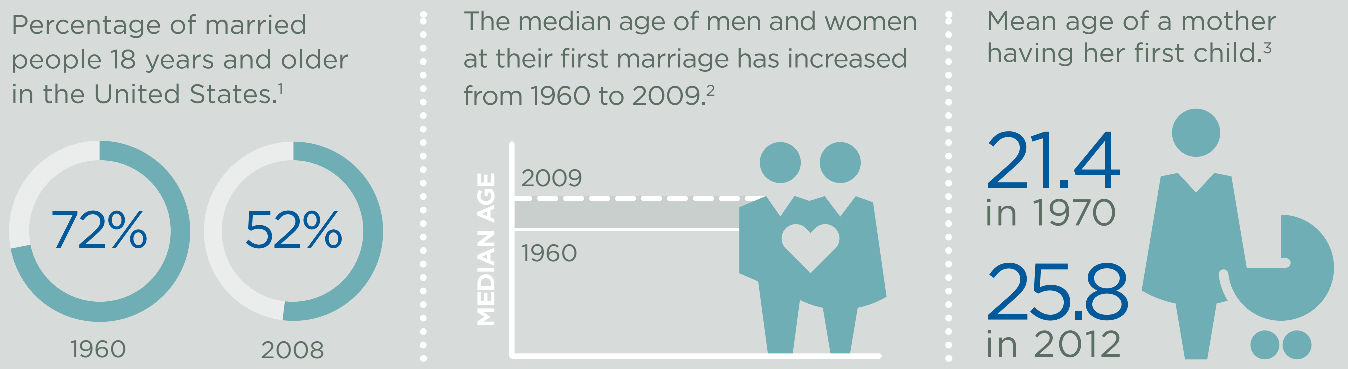
FIGURE 1

Demographic Effect on Re-urbanization



Sources: [1] Pew Research Center, 2010 [2] Pew Research Center 2014 [3] National Vital Statistics Report, December 30, 2013

Growth in the suburbs, U.S. suburbs particularly, was driven to a great extent by baby boomers. Unarguably, this group was massively affected by the most recent recession. They saw their retirement savings and the value of their homes take a hit. The younger generation saw this transpire and don't seem to much care for repeating it. Young people just do not seem as enamored with the idea of a suburban home and a luxury automobile.

Younger demographics exhibit a preference for renting versus buying, sharing versus controlling. Indeed, the "sharing economy" arose in the mid-2000s not just because of this preference, but also because technology now could enable such a preference. With smartphones and mobile technology, the business models of Airbnb, Uber, Zipcar, and the like are now viable. And with crowdsourcing platforms funding business ventures, movies, and music, is the world really that far away from a Kickstarter-funded retirement?

And the potential disruptions to already-established business models could be profound. We are already seeing disruption in the auto industry. Car-sharing services like Uber and Lyft are gaining popularity. Several major auto manufacturers, and indeed several major non-auto companies, are promising to produce driverless cars within the next five to ten years. In fact, companies like Uber and Zipcar are preparing people for a time when the economics of owning an automobile (an asset that spends 90% of its useful life parked – unused and unoccupied) will become either unsustainable or downright foolish.

The housing market is of course very important for capital markets, and another area of potential disruption. As I mentioned earlier, younger people, on the margin, display more of a tendency to renting apartments and less to buying. I think this is definitely re-enforced by the fact that most people under 35 have only seen grief in the housing market. They have seeing their parents and older generations being pushed into foreclosure, and that means the American dream shifted a bit. I think the financial crisis was deep enough to set this mindset as a fairly permanent shift. Think about the people who lived through the Great Depression, and what that engendered in them. There may be a similar action at work here. So the desire to get onto and start climbing the housing ladder may not be what it used to be. I think that is tending to push people towards apartments and condominiums, rather than the "McMansions" of suburbia.

MANUFACTURED GOODS AND COMMODITIES – TOO MUCH STUFF

When the television was introduced to the world at the 1939 New York World's Fair, you could buy an RCA Victor Television Console model TRK-9. The TRK-9 was the size of a small refrigerator and weighed 200 pounds (90 kg). What you got with a TRK-9 was a screen measuring 7 1/4 inches by 5 1/2 inches housed in a polished walnut cabinet – all for US$450. Adjusting for inflation, that is roughly US$7,500 in current dollars.

A quick search of Amazon.com in early April 2015 shows that for US$6,999, one can get an LG 84-inch 3-D 4K Ultra High Definition LED-LCD HDTV with six pairs of 3-D glasses and direct on-set access to Amazon Instant Video, Hulu Plus, Netflix, and YouTube. The LG has a screen that is over 80 times the size of the RCA's. Now, if you just wanted a comparable screen, the iPad Air 2's screen is 7 3/4 inches by 6 inches, just slightly larger than the RCA. However, the iPad weighs less than a pound, and the most that it will cost you in the United States is US$829, or US$42 in 1939 dollars – less than a tenth of the inflation-adjusted cost of the TRK-9 and infinitely more capable than the old RCA.

This is what urbanization and productivity increases have brought us. The cost of manufactured goods has come down drastically in the last three quarters of a century, but the trend is even apparent in the last decade. The world is awash, more than ever, in high-quality manufactured goods. In contrast to the second half of the twentieth century, I think the world is headed for a period where there is a structural excess supply of both manufactured goods and commodities. As you can see in the extreme example above, manufactured goods have not maintained their pricing power over time, even in inflation-adjusted terms.

Why draw the comparison with the second half of the twentieth century? Because that is when the baby boomers were young and there were many bottlenecks in productive capacity for manufactured goods, food, and energy – there was structural excess demand. And that is why growth came with a side of inflation.

Those bottlenecks have dissipated or disappeared in the ensuing decades, bringing about a manufacturing revolution to rival the Industrial Revolution of the previous century. As prices on manufacturing goods have gone down, functionality has gone up, and value has increased dramatically. You can still spend US$30,000 on a car, but what you get for that money in 2015 might as well be science fiction to a car buyer in 1985: lane assist, parking assist, adaptive cruise control, and Bluetooth connectivity...oftentimes standard. This is essentially a deflationary trend; it means that a lot of this stuff that people want is becoming cheaper.

The commodities supercycle of previous decades has not only increased supply, but has also created a greater economy in usage. We have seen this in the energy industry with the weakness in the price of oil.

The idea of a structural oversupply in commodities is perhaps more contentious. The Malthusian fallacy still holds a lot of sway on people who think about commodities. I would argue, though, that the commodities supercycle of previous decades has not only increased supply, but has also created a greater economy in usage. We have seen this in the energy industry with the weakness in the price of oil. The commodities supercycle pushed up the prices of everything from metals to petroleum, which caused a build-up of capacity. As prices continued to increase, that build-up has intensified. However, at the same time, consumption was becoming smarter. Automobiles were becoming more efficient, and less dependent on gasoline. Electronics were becoming smaller, using fewer raw materials. Recycling, particularly of metals, was becoming a business in its own right. This increasing frugality of consumption has led to a situation where supply has outstripped demand and prices have decreased as a result.

What I am really saying is that high prices have led to much greater supply and indeed have also led to much greater economy and consumption. That is a fundamentally very deflationary tendency, and it will tend to continue the downward push on prices over time.

TECHNOLOGY AND INFRASTRUCTURE – INNOVATION AND OBSOLESCENCE

Technology improves and the world reacts. When the automobile became affordable and the world clamored for Henry Ford's Model T, the horse paths and mud-clogged thoroughfares were no longer sufficient to efficiently support the world's changing transportation needs. The world needed and built roads, bridges, and tunnels. I believe we are at the cusp of another such period, and the effects could have massive implications for the utilization of capital. As I mentioned earlier, companies from industries as varied as Mercedes and Google have announced plans to debut partially autonomous or fully autonomous vehicles for the public within the next five to 10 years, and I think represents a potential sea change for our transportation infrastructure.

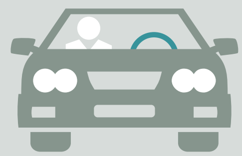
Our society has become more risk averse over time. The fire during the Apollo I launch simulation in 1967 that claimed the lives of three astronauts, if it occurred today, would likely have ended the space program altogether. The public has little tolerance for what they deem unnecessary risk. I see this playing a factor as driverless vehicles begin to debut.

Human error is the sole cause of over 50% of all traffic accidents, and is a contributing factor in over 90%. With over a million people worldwide dying in car accidents every year, and over 30,000 deaths in the United States alone, the safety implications of a technology that can virtually eliminate those fatalities are staggering. A driverless car can see 360-degrees. It doesn't get distracted by a text message. It doesn't get tired. It doesn't get intoxicated. I believe that as the technology proves itself, the public will essentially demand its rapid adoption. Just like seatbelts. Just like anti-lock brakes. Just like airbags. Driverless cars will be the next major safety system. In 20 years, driving your own car could be seen as anti-social as smoking is today. This is what will drive their rapid adoption.

And it is this potentially rapid adoption that will have far reaching impacts for capital markets. Driverless vehicles can essentially eliminate traffic congestion. This will allow more vehicles to travel more safely in less space.

FIGURE 2

Consumers Trust Driverless Cars



57% of consumers, globally, trust driverless cars—even more so in emerging markets

Source: Cisco Customer Experience Report for Automobile Industry, May 2013

The effect will be further enhanced when vehicle-to-vehicle connections enable cars to coordinate their movement. And this gets me to thinking about our infrastructure. I believe that we might be swiftly approaching a time when our present amount of infrastructure could be excessive. Currently, Manhattan needs each of the 21 bridges and tunnels that connect it to New Jersey and the other boroughs of New York City. The enhanced efficiency and safety that driverless vehicles could bring would transition several of these from necessary parts of the transportation infrastructure to just prized examples of historical architecture. In the suburbs, the road networks are based upon a hierarchy, where residential roads spill out into larger "collector" roads, which in turn connect to even larger arterial streets. It is entirely possible that many of these roads, lanes of traffic, and the entire hierarchy could be rendered obsolete. Roads are expensive to build and take up a tremendous amount of area. Freeing up that capital and that space, and putting it to more productive use, would surely be a boon to economies around the world.

I can also foresee significant changes for commercial real estate in the future. If people are freed, even partially, from the physical and financial burdens of owning, storing, and insuring an automobile, does urban living become even more attractive? What do suburban malls look like if there is no need for all those parking spaces? How does the urban core transform if all those downtown parking garages are no longer needed? There are a lot of natural responses to the issue, but it is technology that will enable them.

However, it is not only roads and buildings that are at the verge of a technology-inspired revolution. In a recent conversation about infrastructure investments, a colleague explained that his worry was accidentally investing in the "canals of the twenty-first century." He was referring to the early-nineteenth century boom of investment in a network of canals throughout the northeastern United States.

Transportation canals, like the Erie Canal, were all the rage, but by the middle of the nineteenth century, were rendered obsolete by the railroad. I believe that one of the "canals of the twenty-first century" could be the system of high-powered electrical transmission grids. Technological advancements have created the possibility that the electrical grid of the twentieth century could give way to a new, smarter grid that decentralizes generation of power. Rather than having just a few massive power-generation plants, a smart grid would distribute generation across the network and monitor a two-way flow of electricity. Improving wind and solar technologies could turn residential and commercial buildings into mini-generators, which when combined would create a more efficient network that is less susceptible to outage or some sort of terror attack. Is the world then best served by capital chasing infrastructure opportunities of the last century, or the current one?

OTHER IMPLICATIONS FOR INVESTORS

To summarize some of my thoughts, the global deflationary tendency we have seen likely means that interest rates are liable to stay lower for longer than many expect. And in contemplating a future with potentially lower-than-normal interest rates and prominent deflationary pressures, I believe fixed income investors will no longer make money out of effectively buying bond duration. The set of fluctuations that made that the trade are gone. Investors will, however, be well positioned to make the money by buying income streams when they are inefficiently priced. Those income streams can come from a number of sources: real estate, emerging market debt, commercial mortgage-backed securities, yield equities, or municipal bonds.

Further, if 3% turns out to be a high Treasury yield in the future, then you can expect cap rates on real estate to stay fairly low. This also implies that we could see investors

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hunting spread over Treasurys. My cautionary message is this: you will have to look at when spreads are fundamentally cheap or dear, rather than just looking at them relative to past experience. That relative analysis may have been enough in spread analysis over the last few years, but likely will not be a complete view in the future.

In real estate and infrastructure, technological obsolescence could be an issue. If my theses about lifestyles or the potential of driverless vehicles are correct, then you might see incremental values in downtown areas. Along those same lines, suburban real estate could languish. This could potentially affect residential, retail, and even office property. Real estate could be even further affected by shifts in the current electrical transmission network, so examination is warranted of developments in this area.

As I said at the start of this paper, predicting the future is essentially impossible. There are too many variables and imponderables. Too much human behavior to mar specific predictions. So the goal isn't specific prediction, but determining general direction. Just like the headlights of a car on a foggy night give us a decent idea of where that car is headed in the next few seconds, trends like those that we have identified here can give us a glimpse of the likely path capital markets could take in the coming years. Our responsibilities, as participants in those markets, are to examine that evolution, follow those trends and challenges, and most importantly, develop solutions for the future.

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