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UBS Asset Management

Innovation

An opinion about change | Perception, demographics, technology

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Few of the many "world changing events" being discussed today will materialize, but the innovations that do materialize may "change the world."

William Hughes,
Head of Research & Strategy,
Real Estate & Private Markets

Real Asset Evolution

There are gradual shifts in market conditions that may act as magnetic forces on the distant use, value and investment performance of commercial real estate and infrastructure assets. Certainly, there is a great desire to have advanced notice of the trends and innovations that will shape future investment, so that we can shape our portfolios to take advantage of the new developments and avoid the pending pitfalls. Typically, when forming expectations of future events, such as economic performance, asset demand or on-coming supply, we look to past relationships and compare to the current environment. This technique is less valuable, when the goal is to estimate the impact of events or items that do not yet exist. Thus, the question of "How will real assets react to innovation?" is boundless and, by definition, unknown. Our objective is to segment this unbounded question into definable topics and start a conversation that may lead to insight on the evolution of commercial real estate and infrastructure.

Following this introduction to the current innovation topics, the Real Estate and Private Markets business of UBS Asset Management will deliver a series of independent papers highlighting specific evolutionary concepts. Each of these reports will be delivered under the Innovation title. Annually, the collection of papers will form our current thoughts on the ever changing landscape of the investment atmosphere.

Initial segmentation

Our focus will be on evolving features with a 10-plus year horizon. Conditions that are reversing every couple of years are too temporary and should be the focus of a tactical analysis. Furthermore, the foreseeable changes in the economy and investment environment over the immediate 10-years should be incorporated into the standard pro-forma analysis typically conducted. Changes that may arise 30-years or more from today are too distant to assign any likelihood of realization, and further, are too difficult to adjust today's portfolio decisions in accommodation. Let's consider shifts that appear to be unfolding today and may continue over the next 10 to 20 years.

We can separate the impact of innovation on real assets into investment value impact and property operation impact. You may also suggest that innovation will certainly impact the use of property, and we would completely agree. This impact is captured in the investment value side of the division, on our assumption that investor behavior will follow occupier needs. As tenants needs change, so will the demand for space and the rent paid for suitable space. In turn, changes in occupancy and rent lead to changes in investment value. Investors' objective is to capture the rising values and avoid the falling values.

In this paper, we will focus on potential changes in investment value and will save potential impact on operations for another discussion.

Perspective

It is easy to get excited about many new ideas, when industry experts start presenting future possibilities. Before we share views on the new market developments, it is important to put trends and future events into perspective. Over the years, many evolving developments were presented as market changing events that would completely alter the nature of future investments. In some cases, the innovation did exactly as expected and changed future values. In many other cases, the pending change either evolved with minor impact on the environment, or did not evolve as expected. Thus, it is critical to be aware of and prepare for potential changing conditions without overly committing to an uncertain future condition.

Changed the world

At the beginning of the 20th Century, horse and buggy was the primary form of individual transportation. Over a 20 year period, urban scenes transformed from all horse and one car to all car and one horse. This rapid and overwhelming shift in the typical way of life ended some business operations but led to much advancement. One infrastructure impact was the obvious need for new roads. In real estate, suburban markets became the frontier, as people could cover far greater distances in short periods of time. For those who thought that automobiles were an interesting toy, they were left behind and missed initial opportunities. It should be noted, however, that the impact of the automobile was long-lasting and not reversed. Thus, some investors may have missed the inflection point but were still able to benefit from the development opportunities arising over many years.

The introduction of cell phones is a more recent world changing event that influenced the value of real assets around the world. During the 1960's, 70's and 80's, the idea of talking on the phone while driving between locations or while walking through the city was science fiction. The idea had been considered but few anticipated that its reality was close and even fewer moved their portfolios in advance. The introduction and rapid acceptance of cell phones had both positive and negative impact on communication infrastructure. A tremendous investment into several forms of phone lines was diminished, as the need for a hardline connection faded. On the other hand, cell towers, trunk lines and wireless routing systems were in high need of development.

The impact of cell phones on real estate is less obvious than it is for infrastructure. However, an imprint on the real estate market is measurable. Multifamily property value has been impacted positively by good cell coverage but negatively by proximity to cell towers. Retail properties have benefited from location services and the ability to pre-order through cell phones. Therefore, investors should consider cell phone usage, when selecting investment property. Similar to the market shift due to automobiles, cell phone impact has been increasing over time and new opportunities still arise, years after adoption. Being the first mover has some advantages and carries some risks. Even if investors refrain from jumping into every new idea, the benefits and costs often last for years.

Over sold

Equally important as anticipating innovation is the decision to avoid betting on trends whereby the anticipated impact does not materialize. As valuable as it might be to invest today for the future, making investment choices based on unproven outcomes can be a risky proposition. Avoiding assets that are expected to be obsolete or buying assets valued for future but non-current demand may lead to opportunity loss or capital loss. Investing in this manner has its benefits, as long as participants understand the risk position.

Some widely discussed innovations and subsequent impact on asset values have failed to deliver the expected result. Video conferencing is one example of technology that has delivered new access but did not affect asset values as expected. During the 1990's, it was commonly suggested that advancements in video conferencing would lead to the elimination of business travel as well as the need for workers to be tied to an office. Pundits suggested that video conferencing, along with office hoteling, would have today's workers sitting at home or on the beach connecting with co-workers and clients via video. Technology is certainly available for this to be possible, yet every year there is an increasing amount of office space being occupied and airports are overcrowded with business travelers. Avoiding investment into transportation infrastructure or office space over the past 30 year would have led to a significant loss of opportunity.

Another 90's concept expected to change the real asset environment is just-in-time manufacturing. According to the discussion of the day, warehousing would disappear, as manufacturing techniques moved toward the just-in-time model established by Japanese industrials. Although manufacturing techniques evolved, the demand for warehouse property has not diminished. Perhaps some features did change over the past 30 years. Nonetheless, the warehouse sector could have possibly been the best property investment around the world. Therefore investors avoiding warehouse investments could have missed excellent returns, whilst those investing in just-in-time infrastructure may have not met expectations.

Trend categories

With a bit of perspective on the response to innovative ideas, we attempt to put some structure to a topic that can be boundless. As stated above, this presentation is offered to start a discussion on developing trends and their potential impact on real assets. As we look to the future, the exact direction is uncertain, but a well guided debate about evolutionary trends may assist in current investment portfolio decisions. We believe that informed investors will be able to continuously adjust portfolio positions to take advantage of unfolding opportunities and avoid speculation.

To conveniently structure the discussion about investment changing innovation, we propose the following categories: perception, demography and technology. Of course, some concepts will bridge across these categories. Our hope in defining them is to connect the innovation elements to real asset value change. Ultimately, the discussion about innovation is only valuable if we discover changes in our investment decisions today. The decision may be to radically change portfolio structure, in the anticipation of expected environmental change. The decision may also be to hold the course and monitor the innovation, as it unfolds.

Perception

Any opinion about future investing should consider changes in societal perceptions which influence government regulations, corporate asset-use policies and individual life-style choices. Similar to the other two categories, perceptions can evolve, leading to land use changes that may affect property values. Similarly, infrastructure values are highly dependent on a stable regulatory environment.

Some examples of perception trends are:

- Environmental impact
- Populism – nationalism
- City vs. suburban life

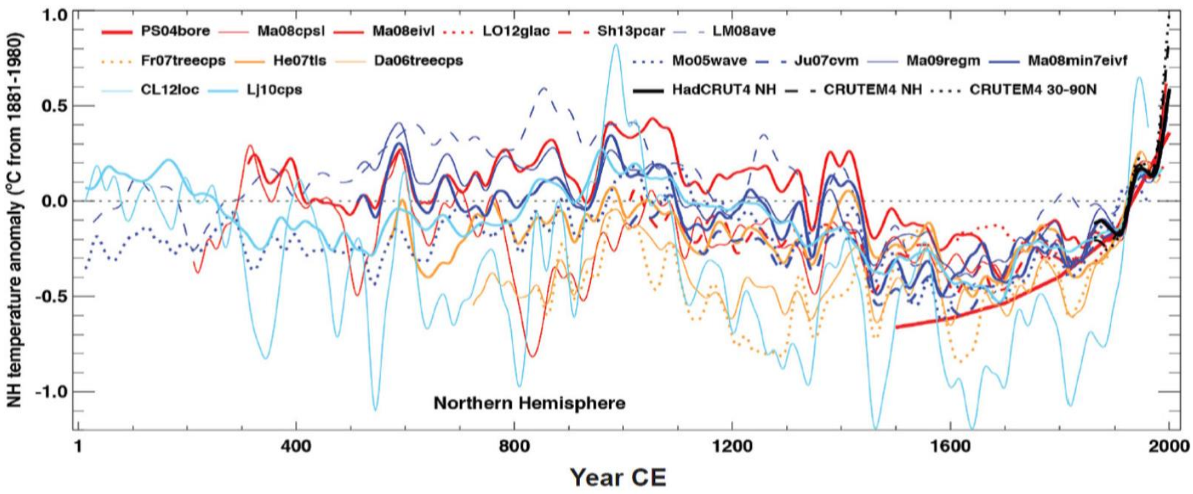
Each of these topics receives significant focus in investment news, the political arena and within individual settings. Regardless of personal beliefs or even forecast accuracy, investors should be focusing on the impact such perceptions are having on property value.

Consider the topic of Environmental Impact or Global Climate Change. The chart below is one of many examples showing the fluctuations in global temperature over the past 2,000 years. The methods of estimation prior to 1850 (before instrument measurements) are often challenged and the very question of human impact on today's climate is under extensive debate.

Regardless of anyone's position on climate change or our ability to improve the environment, it is undeniable that public perceptions have led to regulatory changes and decisions about acceptable use of property.

Infrastructure investments into renewable fuel systems are supported by current regulation and in some cases offered direct subsidy, increasing the value of such assets. Similarly, regulation and general opposition to fossil fuel systems raises the risks of investments into infrastructures such as oil and gas pipelines. Given the long-term nature of infrastructure investment, it is critical to analyze and prepare for potential perception shifts. The question of how burning fossil fuel impacts the environment is one that can be debated to one's personal desire. The point to be addressed as an innovation affecting asset value is one of perception and how it might change asset use.

Figure 1: Reconstructed northern hemisphere annual temperature during the last 2000 years



Source: NOAA (National Oceanic and Atmospheric Administration) and NCEI (National Centers for Environmental Information). Contains Paleo studies published between 2005 and 2013, plus instrumental data from the Climatic Research Unit (CRU).

Our discussion need not get caught up in the debate about proving the existence of climate change, or whether certain policies might improve conditions. However, we should recognize that there is enough public perception, for changes in human behavior to reduce the average global temperature and influence the weather volatility that is present today.

The key behavior modification sought is reduced production and use of fossil fuels as energy. The impact of current environmental perception extends beyond infrastructure to real estate.

The governments in Australia and The Netherlands both lead the way in commercial property use. Both sovereigns established rules regarding any public entity's leasing of privately held property. Thus, any landlord hoping to lease office space to agencies of either government will be subject to environmental rating requirements.

For a start, a property must be Energy Star rated to even be considered for a lease. As a result, the value of all unrated buildings in these countries is diminished, whilst the value of rated assets improve. This is defined as value of perception.

Demographics

Demographic trends are foreseeable for many years to come but often poorly monitored in the investment market. Our discussion should center around the impact that foreseeable changes in population will have on infrastructure and real estate. This will be both a timing and location challenge. Not only must investors be aware of demographic changes, but they must recognize the way these changes will affect asset use, and ultimately value.

Having long advance notice can be both an advantage and a challenge for investors. For instance, with reasonable accuracy we can estimate the number of people that will be over 50 years old, 20 years from now. The challenge is anticipating how a change in population will influence property use and when the time is optimal to take a position.

During the 1990's, everyone was aware that Baby Boomers in the US were impacting markets as they moved through the age brackets. Multifamily developers saw an opportunity to build assisted living properties in anticipation of this group reaching retirement age. Unfortunately, the race to establish a position in this rising area led to the delivery of thousands of units, at the time that Boomers were entering their 50's and a long way from needing assisted living facilities.

These investments led to significant over-building to meet the time current demand, regardless of future need. Today, assisted living is timelier in the US, following the failure of many investors who entered too early.

Consider the charts below – one depicting the percentage of total population that is of working age and one showing the percentage of total population over the age of 65. These demographic shifts vary widely by location. The simple difference between the global average and developed country results is that the data is largely affected by location and timing. Anticipating innovation during a demographic shift requires local data to be combined with local customs. Fortunately, unlike most trend categories, these expectations are highly reliable.

Exhibit 2: Working age population 20-64 (thousands)

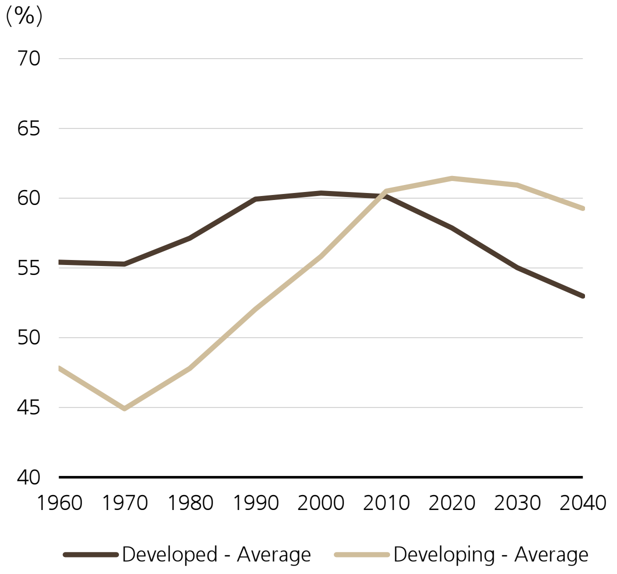
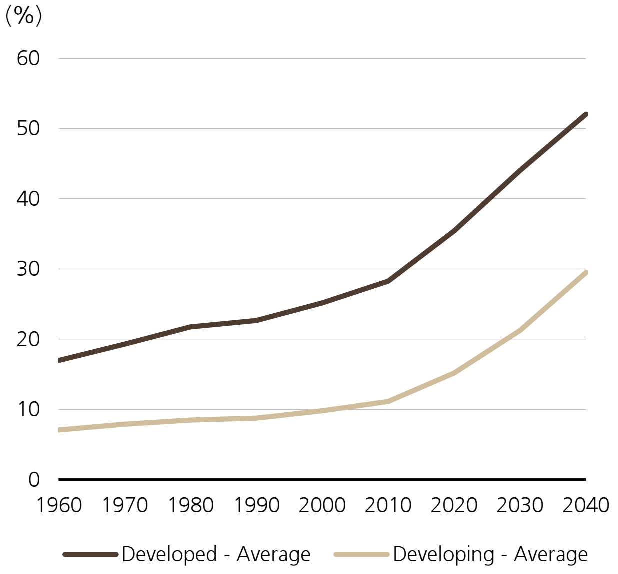


Exhibit 3: Old age dependency ratio



Source: United Nations Population Division, Department of Economic and Social Affairs. World Urbanization Prospects: The 2014 Revision. February 2018.

Technology

The first thought that comes to mind, when considering the topic of innovation, is technological change. We all think that invention is the output of innovation. This may be true, but we want to separate the technological advancement from the innovation discussion for investments. To us technology itself is not the innovation, but rather the change in real asset use is the innovation. From an investor's perspective, it is the use change that alters value and affects the owner's returns. In this context, technology is the catalyst that brings change to the way assets are being used.

Perhaps we can explain this point with the example of the automated car. The development of a driverless cars is brilliant technology. The manufacturing, delivery and acceptance of such technology will certainly attract much attention and be widely discussed among creators and users. For our purpose, it is the impact that such a development will have on infrastructure and property use that sets trends influencing future investment.

However, the real question is how we should alter our investment portfolio today to be better positioned for the risk-adjusted return? We will offer an opinion on this point in the final section.

The fact is that the technology exists today. It is no longer an anticipated invention but a technical reality that may or may not affect the future of real assets. Today in Singapore, a driverless taxi operates under a limited license. The white car pictured currently transports passengers to several locations driverless. This is not completely isolated. It is expected that similar trial runs will soon start in some US cities.

The auto technology does currently exist, although the impact on real assets is still unmeasurable. The question at hand for our discussion is whether or not these cars will become accepted and widely used? And if so, how real asset values will be affected?

World's first driverless taxi trial kicks off in Singapore

Photo source: Reuters Pictures (nuTonomy)

Taking a position

Notwithstanding all of the uncertainties of predicting the future 10 to 20 years from now, we understand that we must take a position on some current trends to start the dialogue. To that end, we offer the following current considerations as incremental investment decisions (changes) to a real assets portfolio in anticipation of some mega trends.

Investments to start discounting

Central office – particularly with parking
- Technology: city parking currently has high value that may diminish with automobile innovation.

Assets with weak environmental ratings
- Perception: government and corporate focus on environmental change may reduce demand for poorly rated property.

Any asset that can be labelled with an environmental or social stigma
- Perception: social values may deem some assets to be un-ownable.

Property occupied by tenants deemed as "unethical"
- Perception: beyond building scores, the tenants to whom we rent may affect investors' willingness to own properties.

Standalone out-of-town business parks
- Demographic: movement toward more centralized settings could leave isolated assets without demand.

Non-ideally located or awkward retail
- Demographic & Technology: as the retail sector shifts towards a new structure, strength of location will become even more important.

Parking facilities and property near parking
- Technology: the future of personal transportation could dramatically reduce parking demand (in buildings or standalone garages).

High density professional-tenant assets
- Demographic & Technology: improved connectivity and increasing locational preference may make concentrated professional staff locations unnecessary.

Long leases, single tenants with no residual land value
- Demographic: urbanizaton trends may reduce releasing opportunities in isolated locations.

Investments to start valuing with a premium

Clean energy generation – increased demand upon energy storage breakthrough
- Technology: Once energy can be stored efficiently (stable batteries), the need for clean energy infrastructure will also increase.

Cost effective configurable space
- Technology: changing use leads to high capital requirements in all commercial sectors. Adaptable space will better meet ever evolving needs.

Experiential retail assets
- Perception & Technology: shopping is being split between physical stores and virtual stores, which has increased the requirement for mixed-use facilities.

Well-being – life style assets with low carbon footprint
- Perception: counter to the discount for lack of focus, a premium could develop for socially and environmentally conscious assets.

Ex-urban sites – well connected to the city
- Demographic: a possible extension of the urban movement occurring around the globe.

Logistics in close proximity to population
- Demographic & Technology: demand for close logistics may rise in response to increased virtual shopping requirements.

Assets supporting the aging population (medical offices and assisted living)
- Demographic: several nations have predictably aging populations with specific service needs.

ESG product / asset – properties that qualify for restricted leasing, as defined by government and corporate tenants
- Perception: a direct response to policy driven property-use restrictions.

Roadways connecting residential and work centers
- Demographic & Technology: an opposing expectation arising from urbanizm / automobile technology. If individual commuting becomes easier, people may move back to suburbs.

The aggressiveness with which an investor chooses to adopt these premiums or discounts will depend on risk tolerance and conviction of innovation impact. If investors ignore the changing perceptions, demographics & technology occuring in today's environment, they run the risk of owning outdated and declining value assets. On the other hand, if investors move too dramatically or too early, they run the risk of paying a premium for benefits that fail to materialize or dispose of assets that hold value, at huge discounts. Our objective is to start a discussion, so that investors can achieve their portfolio goals through making informed decisions.

Real Estate Research & Strategy

William Hughes

For more information please contact

UBS Asset Management
Real Estate Research & Strategy

10 State House Square
Hartford, CT 06103
Tel: +1-860-616 9000
william.hughes@ubs.com

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