LOW INFLATION AND INTEREST RATES ARE AGEING

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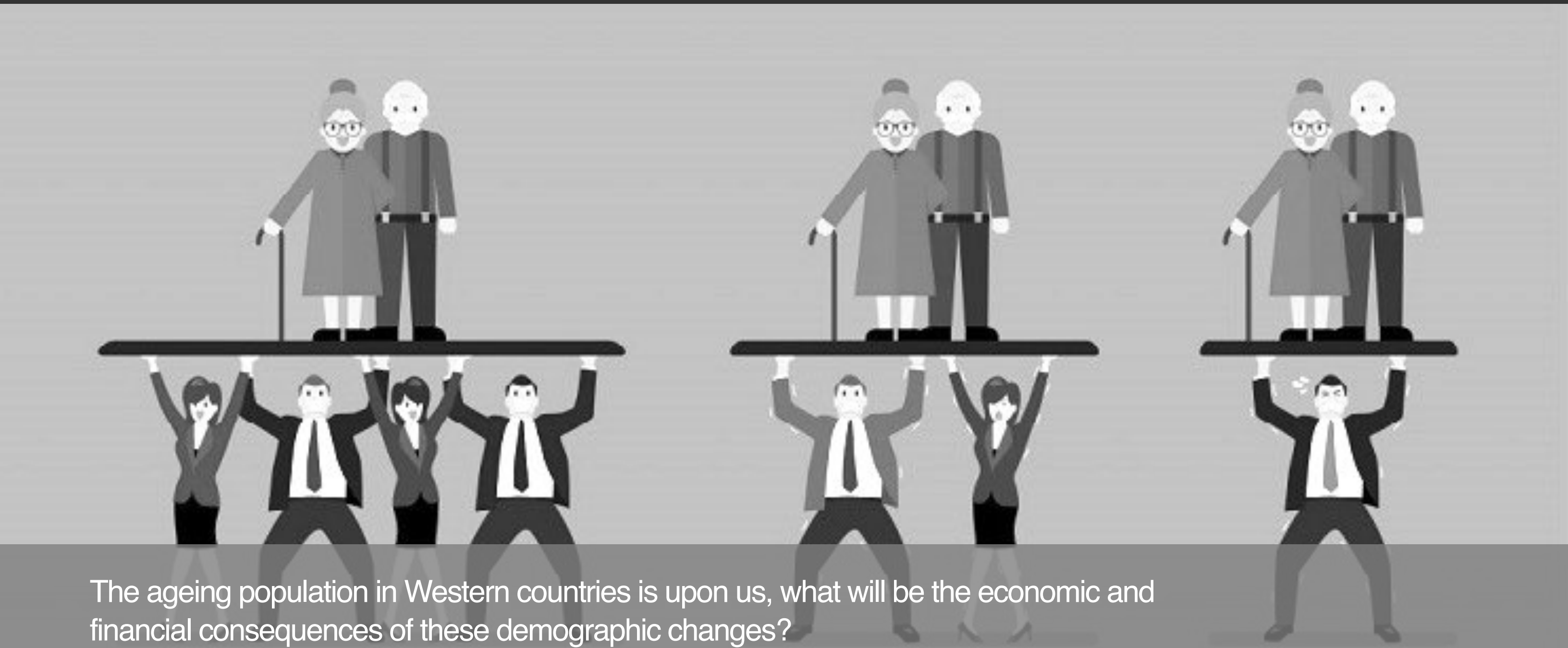


The ageing population in Western countries is upon us, what will be the economic and financial consequences of these demographic changes?

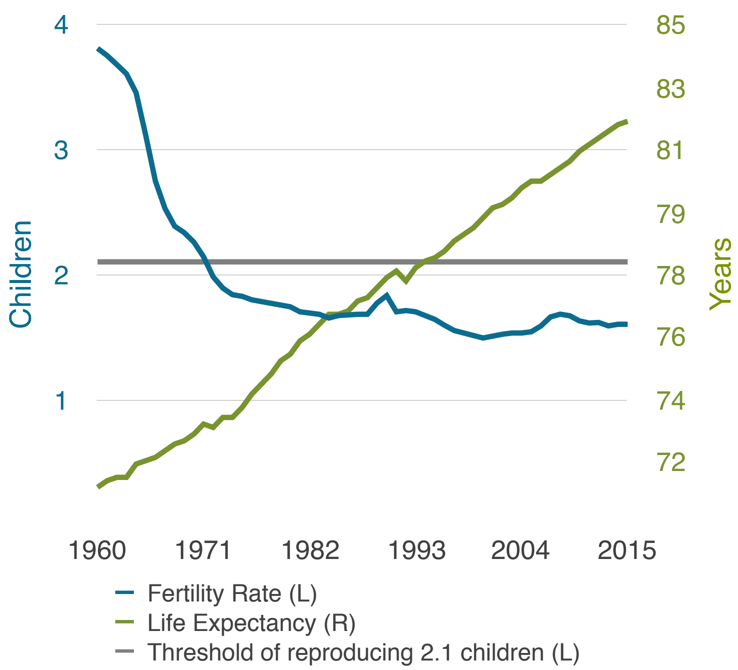
LONGER LIFE EXPECTANCY, LESS CHILDREN

"Your great great-grandmother had fourteen children, your grandmother had three and it was enough, and your mother didn't want any, you were an accident." These lyrics, from the song « Dégénérations » by Quebec band « Mes Aïeux », illustrates the demographic trends in industrialized countries where the fertility rate dropped in the early 1970's. At the same time, life expectancy steadily increased (chart 1), meaning that fewer working-age people would be supporting a larger portion of dependents and consumers, those under 15 and over 65 years of age (chart 2). This balance shift between those who produce and those who consume would affect economic potential growth, the level of inflation, but also the direction of the financial markets, interest rates and pension funds financial health.

Currently, this phenomenon is more prevalent in developped economies. The portion of the total population aged 65 and over in these countries was 12 % in 1990, but is expected to reach nearly 20 % by 2030 according to the United Nations (UN). For the first time since the 1950's, developed countries population aged 15-64 is declining and will fall by more than 5 % by 2030 according to the UN. On the other hand, the situation is less dramatic in emerging economies where 8 % of the population will be 65 and older in 2030 compared to 4 % in 1990.

Chart 1

FEWER CHILDREN AND LONGER LIFE EXPECTANCY IN CANADA

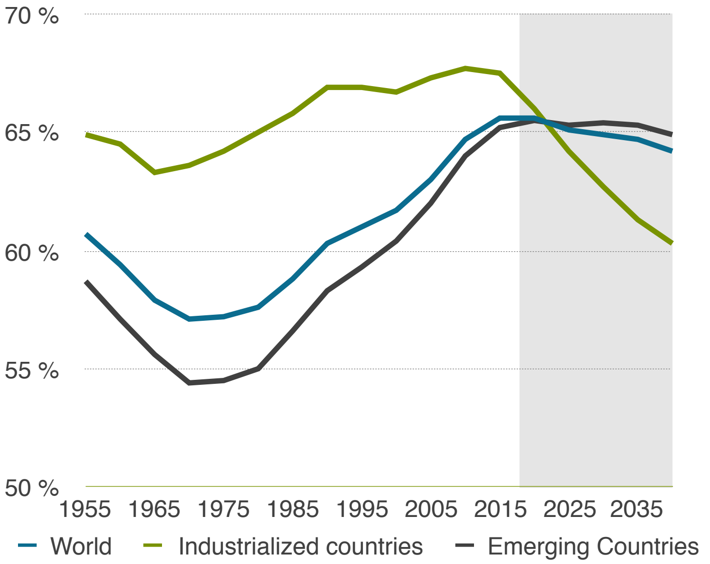


Source: United Nations (UN), World Population Prospect 2017

Chart 2

LESS AND LESS WORKERS

Working population as a percentage of total population

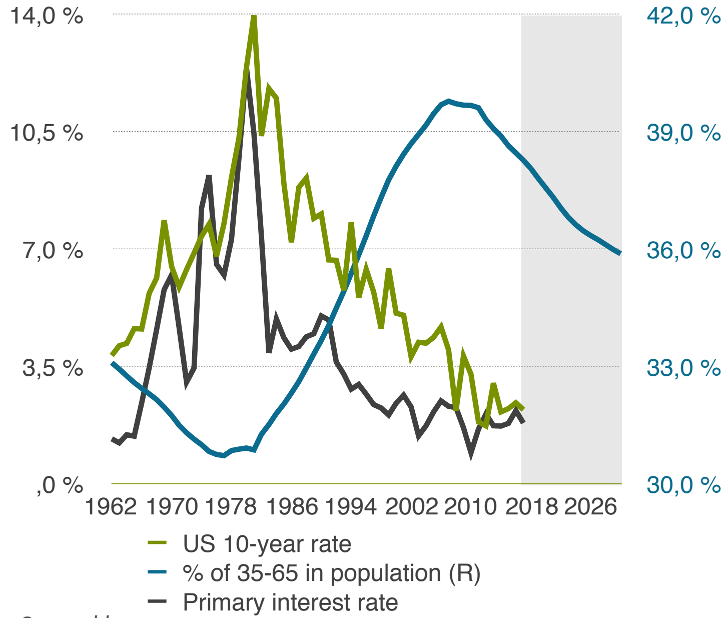


Source: UN, World Population Prospects 2017

Chart 3

POPULATION AGED 35-65 ARE SAVING MORE

United States (2013)



Source: bls.gov

DEMOGRAPHY INFLUENCING INFLATION AND INTEREST RATES

Well-known Nobel Prize winning economist Milton Friedman is known to have stated loud and clear that inflation will always be a monetary phenomenon. Too much money chasing too few goods. Admittedly, the quantity of money available can have an influence in the short term, but what are the long-term trends? As history shows, inflation was obviously high in the 1970's, but chronically low today despite the massive monetary injection from central bankers since the financial crisis. However, large movements in the inflation rate seem to coincide more closely with the evolution of demography in many advanced economies, and more particularly with the ratio of workers to the number of consumers in the country (chart 3).

It's no secret, baby boomers, born between 1946 and 1965, are moving quickly towards retirement while an even larger generation of millennials are entering the workforce (chart 4). Since cohorts have different behaviours in respect to savings and consumption decisions, demographic changes therefore influence inflation and the supply and demand balance of capital. Through a typical lifecycle, a person fills its large consumption needs in its early days by borrowing, saves during its professional life and lives off accumulated assets during retirement. People consume throughout their lives, but only contribute to economic production during their working lives. Thus, the accumulation period of a worker's savings increases with age, reaching a peak between 40 and 60 years of age.

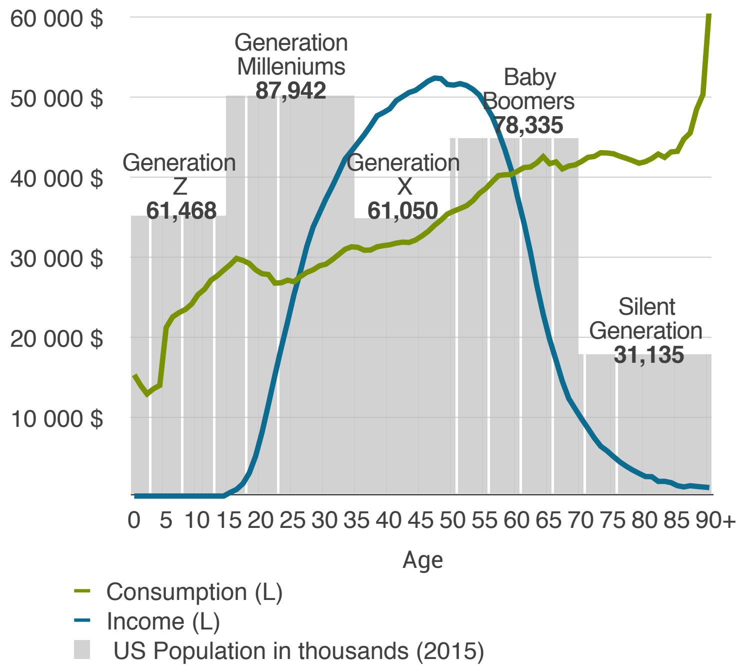
According to a study conducted by IMF[1], based on 22 developed countries between 1955 and 2014, *inflation manifested itself when the portion of the population who consume is greater than those who produce, meaning when the younger and older populations are larger than the population in the labor market.*

This is what is currently happening. There are fewer workers supplying the massive consumption needs of other cohorts', putting upward pressure on prices unless worker productivity accelerates. The authors estimated the overall age structure impact on inflation (chart 5) and claim that this robust link remains, even when other variables associated with inflation

Chart 4

TYPICAL LIFE CYCLE SAVINGS PATTERN

The two largest cohorts in the United States will save less



Source: BCA Research, UN

[1] Age and Inflation, http://www.imf.org/external/pubs/ft/fandd/2016/03/juselius.htm

are taken into account. Demographics explains almost a third of the variations in inflation and the bulk of inflation trend. The authors estimated that the baby boomers entry in the labor market can explain a decline of about 5 percentage points in the inflation rate between the late 1970's and the early 2000's. During this period, many boomers were in the saving cycle while fewer people were in the consumption cycle. Today, we are witnessing the opposite. The portion of the working-age population is small relative to consumers (young and older), signaling a reversal in the downward inflation trend (chart 5).

The link between demography and interest rates is also present. Over the last 20 years, boomers have found themselves in the midst of their wealth accumulation period, partly accounting for the downward trend in rates. As they enter retirement, boomers will gradually disburse their savings to meet their growing consumption requirements. In fact, health costs tend to grow rapidly as you get older, which explains the increased expenses.

As a result, the period when the population aged 35 to 65 was at its lowest, i.e when few were saving, corresponds to the moment when interest rates peaked (chart 3). In contrast, when more people are saving, interest rates decline, resulting in a surplus of available capital relative to ongoing investment projects. Today, the cohort at the peak of their working life is small relative to those whose consumption exceeds income. Baby boomers will reduce their savings at the same time that an even bigger generation will have to borrow to build their families, buy a house, furniture and even a car. These changes should favour creditors at the expense of borrowers who will see their cost of capital rise.

GLOBALIZATION EFFECTS AND DEMAND FOR CAPITAL

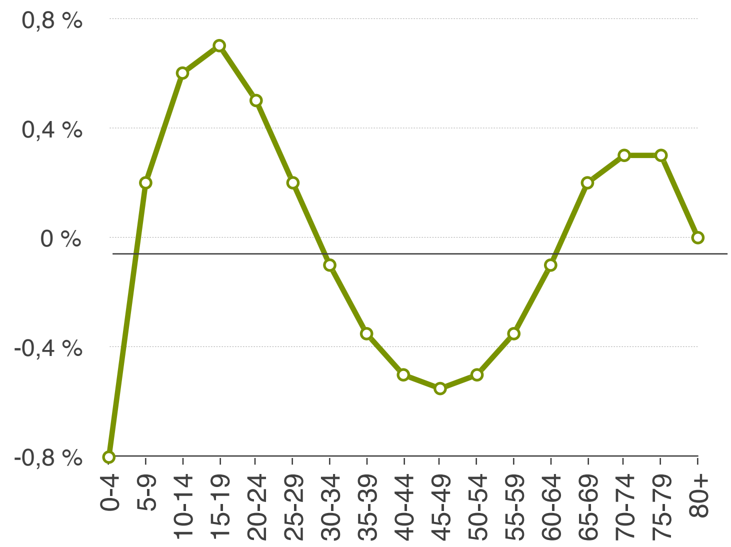
In isolation, life cycle hypothesis and demographic changes are expected to put upward pressure on inflation and interest rates. However, we live in an integrated global economy where international trade is predominant. China's entry into the World Trade Organization (WTO) in 2001 and the collapse of the communist system in 1989 reshaped the global economy at the beginning of the millennium. Falling international trade barriers had considerably increased the pool of available workers worldwide (chart 6), thus creating downward pressure on workers' wages in industrialized countries. In the face of this new production reality, it has become more attractive for companies to employ workers in emerging countries than to set up investment projects in industrialized countries which would raise the level of productivity. This relative decline in global investment has also been accompanied by an increase in international savings, particularly from China, where a large portion of the trade surplus has been recycled into US Treasury bonds. All in all, globalization has raised the level of global saving and reduced the attractiveness of investing given the abundant and affordable labor force.

Today, the effect of globalization has faded and could reach an inflection point soon. Unlike popular belief, the Chinese population is also ageing. The weight of the working-age population is expected to decrease from 73 % in 2015 to nearly 65 % within 20 years, while seniors aged 65 and over will represent more than 20 % of the population, twice as much as they were in 2015. In addition, 67 % of the Chinese workforce is

Chart 5

DEMOGRAPHIC IMPACT ON INFLATION

Net effect on inflation rate



Source: Age and Inflation (IMF)

employed in the manufacturing sector compared to 33 % in service industries. Since empirical studies show that labor productivity decreases with age, Chinese leaders might choose to invest in machinery to maintain the level of productivity.

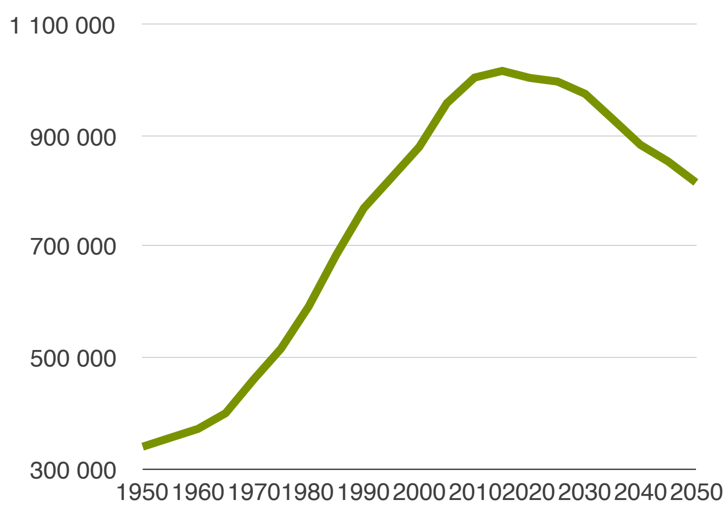
Future structural reforms could also help reduce China's savings surplus. The transition from an exporting economy to a domestic one would reduce the trade surplus and foreign exchange reserves invested in bonds. The introduction of social safety nets would also reduce households' incentives for precautionary savings. In sum, globalization has created a savings surplus relative to investment, but the trend is expected to reverse in the next decade.

Moreover, the American protectionist movement, under which Donald Trump founded part of his 2016 election campaign, has slowly emerged with the announcement of tariffs on steel

Chart 6

CHINESE POPULATION

Number of workers aged between 15-64 years (in thousands)



Source: UN, World Population Prospects 2017 imports (25 %) and aluminum (10 %). A response from US trading partners could come soon, setting a trade a war which would reduce the volume of international trade while raising prices of goods and services.

WHY ARE RATES STILL LOW?

As illustrated, demography and globalization have accounted for much of the decline in inflation and interest rates over the last 30 years. These effects began to switch in recent years, which in turn should have put upward pressure on inflation and rates. In fact, the proportion of 35-65 year olds has been declining since 2010, at a time when globalization reached a plateau. This structural rise in interest rates did not manifest itself because of the financial crisis. Indeed, central banks intervention through quantitative easing programs has significantly increased the size of available capital to be invested, especially in bonds. The Federal Reserve estimated that the cumulative effect of its efforts has reduced the 10-year bond rate by 105 bps in the United States. In addition, in recent years, ceo's have preferred to raise dividends and set up share buyback programs instead of investing. Combined, these factors have put downward pressure on interest rates.

The combination of the quantitative easing programs and governments' fiscal discipline in recent years has pushed rates downwards. Indeed, central bankers have bought more bonds than governments have issued in the last 3 years. The opposite will occur in 2018. Since October 2017, the Federal Reserve has been reducing their balance sheet while the European Central Bank has been reducing the size of their monthly purchases since January 2018 by half to 30 billion €. This reduction in purchases is also accompanied by an uprise in government deficits, particularly in the United States with the adoption of Trump's tax reform. Thus, governments will issue more bonds than central bankers have planned to buy, creating upward pressure on rates.

HEALTH CARE INDUSTRY

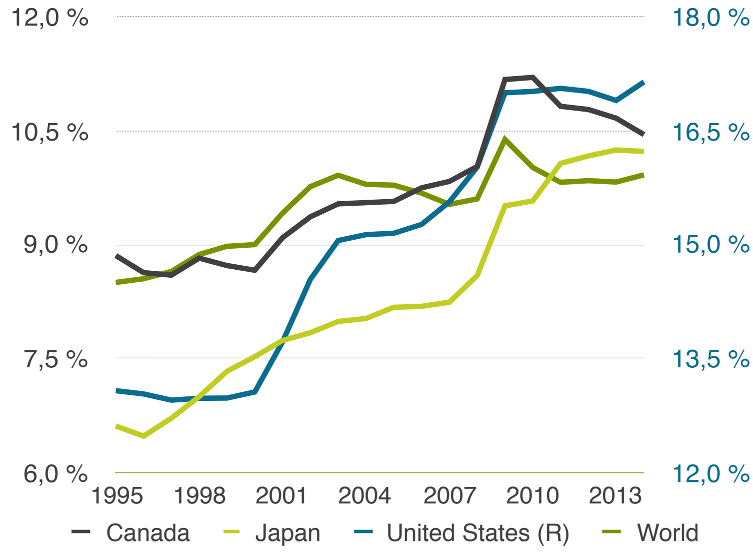
Fewer workers supporting a growing number of seniors may also have a negative impact on government budget balances, mostly because of health care cost increases with age (chart 7). As the population ages, jobs in the health care industry will grow. In Canada, the portion of total employment in this industry has increased from 10 to 13 % between 1990 and today and from 7 to 11 % in the United States. Employment in this industry has grown steadily, even during the financial crisis. In countries with full employment, adding jobs in labor-intensive industries like health care would put upward pressure on wages. Currently, nearly 39 % of Quebec's government expenditures are in health care and the pressure on these expenditures will continue to grow. The authorities could solve this problem by raising income taxes or reducing other expenses. Education is the second most important item in Quebec's government budget (21 % of the budget). Downsizing in education would result in a loss of future productivity for the society.

Governments could also choose to cut pensions. Nevertheless, these strategies are unlikely to be adopted because they are politically suicidal. Baby boomers are more politicized and exercise their voting rights.

Chart 7

HEALTH CARE COSTS

in % of GDP



Source: World Bank

An alternative would be to raise the retirement age which was set at 65 back in 1966 by Régie des rentes du Québec, when the life expectancy at birth was 72 years old. Since then, life expectancy has increased by 10 years, requiring a larger retirement fund. A study published by the Federal Reserve estimates that increasing longevity has led households to save more, which has been a predominant factor in explaining lower interest rates in recent years. In fact, if we rely on the conclusion of the report « Innover pour pérenniser le système de retraite » better known as «Rapport D'Amours», an individual spent on average 45 % of his life at work in 2009, compared to 60 % in 1970. Workers must therefore save a greater proportion of their salary today than they did 40 years ago in anticipation of a longer retirement on average.

FREEDOM 55

One factor that may contradict our demographic analysis is the fact that workers could be postponing their retirement. If employees extend their retirement age to 70 and continue to save, the demographic effect on rates and inflation will be lower. In this regard, the financial crisis had an impact on household balance sheets, justifying the fact that some workers had to keep their jobs instead of retiring due to lack of income. A study done on the labor market since the financial crisis demonstrates that workers have not waited for a government decree to delay their retirement age. It appears that Canadian workers have abandoned the "Freedom 55" concept that was so prevalent in the 1980's. Since the end of 2008, the Canadian economy has created a total of 1,697,000 jobs, including 935,000 for Canadian workers ageing between 55 to 64 and 409,000 for those 65 and over. Young adults (aged 15-24) lost 89,000 jobs while workers in their prime years (25 to 54 years old) gained only 442,000 jobs in 9 years. This bias towards older workers is not just a Canadian phenomenon. The United States also shows a similar picture, with workers 55 and over capturing 80 % of jobs created since December 2008 (table 1).

Table 1
JOB CREATION BY AGE
Dec. 2008 to Dec. 2017 (thousands of people)

COHORT	CANADA	UNITED STATES
15-24 years old	-89	254
25-54 years old	442	1,887
55 and over	1,344	8,400
TOTAL	**1,697**	**10,541**

Source: Statistics Canada, Bloomberg

Boomers also have a higher level of education than the previous generation. According to Statistics Canada, the proportion of people aged 55 and over with a university degree rose from 9 % in 1996 to 20 % in 2016. Graduates are more likely to be in the workforce as they age.

In some countries, immigration could counterbalance the economic effects of the ageing population. Nevertheless, this avenue loses more and more support around the world due to border control movements in the United States and the Brexit vote in the United Kingdom. Currently, Canada is not on the same path as our southern neighbour, but some voices are rising against immigration.

CONSEQUENCES ON FINANCIAL MARKETS AND PENSION FUNDS

An older population would lead to a lower potential economic growth accompanied by inflationary risks, referred to by economists as stagflation. We have also indicated that the ageing population should lead to lower savings while lower potential growth means less investment for industrialized countries. The direction of interest rates will therefore depend on the magnitude of the decline in each of these situations. Savings may well fall further, putting upward pressure on the structure of interest rates. Although an economy with a lower potential growth rate requires less investment, companies will have to automate their production even more if a shortage of labor raises wages and reduces company profit margins.

This balance between capital and labor is currently unfolding in the American economy. The Great Recession brought about significant unemployment in the economy. Ten years later, the economy is running at full speed and excess capacity has been absorbed, pushing companies to invest in machinery and equipment during 2017. This cyclical shift in production equipment could become structural when the demographic effect of ageing grows. Corporations will favour capital to replace the shortage of workers, which justifies a smaller decline in investments relative to savings.

The use of monetary policy is also likely to change with an ageing population. Reducing the policy rate to a very low level during a recession is a way to move future consumption forward. However, an ageing population is a population that consumes fewer goods, but more services. As a result, the expected effect of a rate reduction policy will be weakened.

In addition, stock market values could be revised downward. A reduction in the labor pool means a lower potential growth rate and therefore a decrease in sales growth for companies. Higher wages could also erode corporate profit margins. Stocks should also be influenced by the level of interest rates. If changes in demography enhances the interest rate structure, the present value of future profits should also be reduced. What's more, a portion of accumulated wealth is found in corporate stocks, especially since fixed income products are not paying much interest. A disbursement of savings also equates to a sale of shares.

However, some industries will come out winners. Offering more services to baby boomers will allow some industries such as health care to stand out.

All in all, we are approaching an inflection point in the global economy. Some factors in recent decades that have helped reduce inflation and interest rates are gradually reversing. First, the ageing population is expected to translate into a lower potential growth rate accompanied by inflation. Second, the global openness to international trade has reached a plateau and could be reversed if protectionist measures intensify. Finally, asset purchase programs by central bankers are fading at the same time as governments increase budget deficits, creating a surplus of bonds to sell in 2018, a first in three years. As a result, asset returns should be revised downwards, especially if a rise in interest rates results in negative returns to the fixed income portion (Table 2).

Table 2
TOTAL RETURNS BY ASSET CLASS
1984 to 2016, annualized returns

Asset	1984 to 2000	2000 to 2016
GDP	2,5 %	1,9 %
FTSE-TMX Universe	10,8 %	5,6 %
FTSE-TMX Long term	12,4 %	7,3 %
S&P TSX	11,5 %	6,1 %

Source: Statistics Canada, Bloomberg, FTSE

AlphaFixe Capital

1 800 Avenue McGill College
Suite 2420
Montréal, Québec
H3A 3J6
t: 514-861-3493
www.alphafixe.com