

RESEARCH REPORT



# The Demographic Drivers of European Real Estate Demand

January 2013



**RREEF Real Estate**

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## Executive Summary

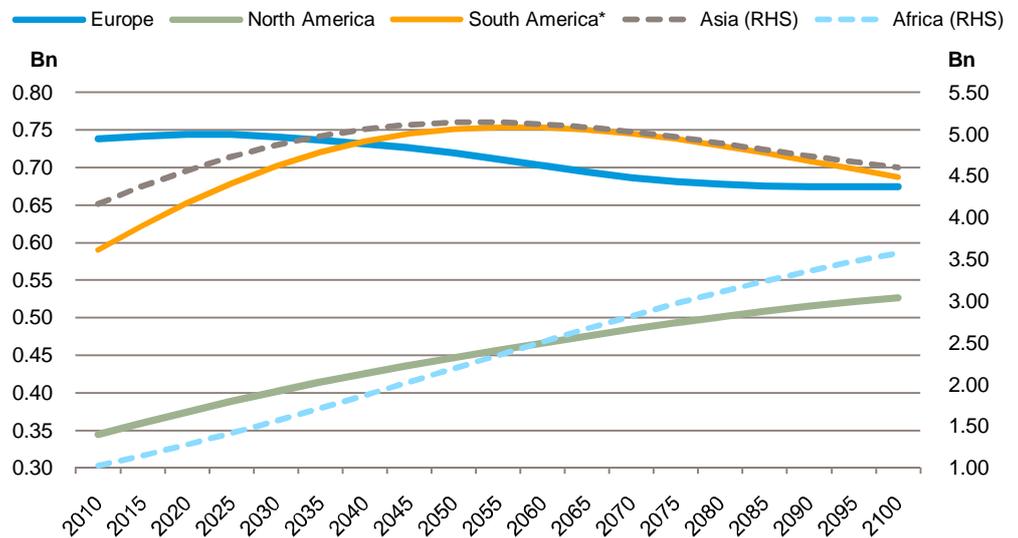
- According to the latest forecasts from the United Nations, global population will rise from around 7 billion in 2010 to 10 billion by the end of the century. The majority of this increase will occur in Africa, which is set to see population growth of around 2.5 billion over the next 90 years. Steady population decline is forecast for Europe from 2020 onwards, with Asia and South America following in the second half of the decade.
- The demographic outlook for Europe varies significantly across countries and regions. Over the next 40 years, the largest absolute falls in population are set to be in Russia, the Ukraine, Germany, Poland and Italy while the United Kingdom, France and Spain are forecast to see population growth over this period.
- Population projections over a number of decades are highly sensitive to changing assumptions such as fertility rates and immigration levels. Altering the average fertility rate in Europe by just half a child more or half a child less, results in a projected 2100 population of between 400 million and 1.1 billion – calling into question the merit and usefulness of such forecasts.
- The European dependency ratio (ratio between the size of working age and non working age population) is set to rise, lowering the total productive capacity of an economy, those of working age will also face the increased burden of supporting those not in employment.
- Examining different European age cohorts, the 60+ age groups are set to record significant growth between 2010 and 2020, increasing by almost 28 million people. The largest absolute change in a single ten year cohort is expected in the age group 20 to 30, which is due to shrink by almost 22 million people between 2010 and 2020.
- Population change will not be uniform across European nations. Almost half of the decline in the European age group 20 to 30 can be attributed to Russia, where the group is set to shrink by ten million in the decade to 2020. This is in contrast to the UK, the Netherlands and Sweden recording modest growth.
- Demographic changes could have major implications for real estate – driving demand and influencing the type, functionality and location of real estate requirements. Across Europe over the next decade, demographic drivers are likely to weigh upon the demand for student and family housing, night life venues and office space, while increasing demand for schools, family leisure, retirement villages and nursing homes. Population drivers for student housing look particularly weak in Germany, Sweden, Poland and Russia.
- Although spending habits are not static, demographic shift will likely be detrimental to some retailers and retail locations, which rely upon young fashion to drive high levels of turnover and sales. Successful, shopping centres (particularly in-town), may increasingly look to capture older spend by adapting communal areas and readjusting their tenant mixes.
- In some European countries, particularly the United Kingdom, there is evidence that age groups tend to cluster in certain locations, with older generations showing a greater propensity to living in low population density areas – i.e. small towns and rural areas. With the population aging, residential location decisions could have a major influence upon an area's residential and commercial real estate demand.

## Demographic Outlook

The world is forecast to experience huge demographic shifts over the coming 90 years. Changes in population size and configuration will have profound implications for economic and political power, resource distribution and aggregate demand – including the demand for real estate.

According to the latest estimates from the United Nations, global population will rise from around 7 billion people in 2010 to over 10 billion at the end of the century. By the end of the century, global population is forecast to be near peak levels, and across a number of regions will be falling. Of the six inhabited continents, half are expected to experience sustained population decline at some point over the next 90 years. The population of Europe is expected to peak in around 2020, while Asia and South America are each set to record depopulation from 2055 onwards.

### Population Projection (Medium Fertility)



Sources: United Nations World Population Prospects: The 2010 Revision, 2010

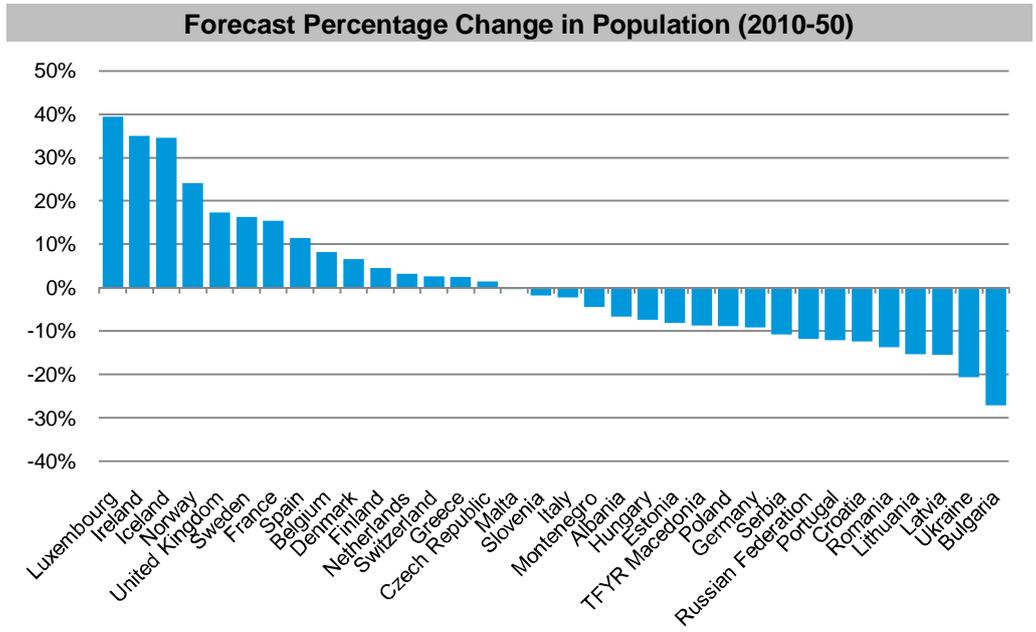
Note: Graph excludes Oceania, \*Includes Caribbean

These forecasts are subject to a high degree of uncertainty. The United Nation's World Population Prospects report provides two alternative scenarios showing the impact of a change in fertility. In the central scenario, global average fertility declines from 2.52 children per woman in 2005-2010 to 2.17 children per woman in 2045-2050. If fertility were to be half a child above the levels projected in the central scenario, world population would reach 10.6 billion by 2050 and 15.8 billion by 2100. A fertility path half a child less than the medium would lead to population of 8.1 billion by mid-century and 6.2 billion by 2100.

### European Demographic Outlook

The current population of Europe (including Russia) is estimated to be 740 million. As shown in the graph above, the outlook for Europe is one of gradual population decline throughout this century, falling by 20 million over the next 40 years, and a further 45 million during the second half of the century.

This overall decline in population masks significant national differences. Over the next 40 years, the largest absolute falls in population are set to be seen in Russia (17 million), the Ukraine (9 million), Germany (8 million), and Poland (3 million). These forecasts also indicate significant population increases in countries such as the United Kingdom (11 million), France (9 million) and Spain (5 million) – although recent increases in emigration from Spain call this forecast into question. In percentage terms, countries such as Luxembourg, Ireland and Iceland are forecast to see some of the highest rates of growth, with populations expanding by over 30%.



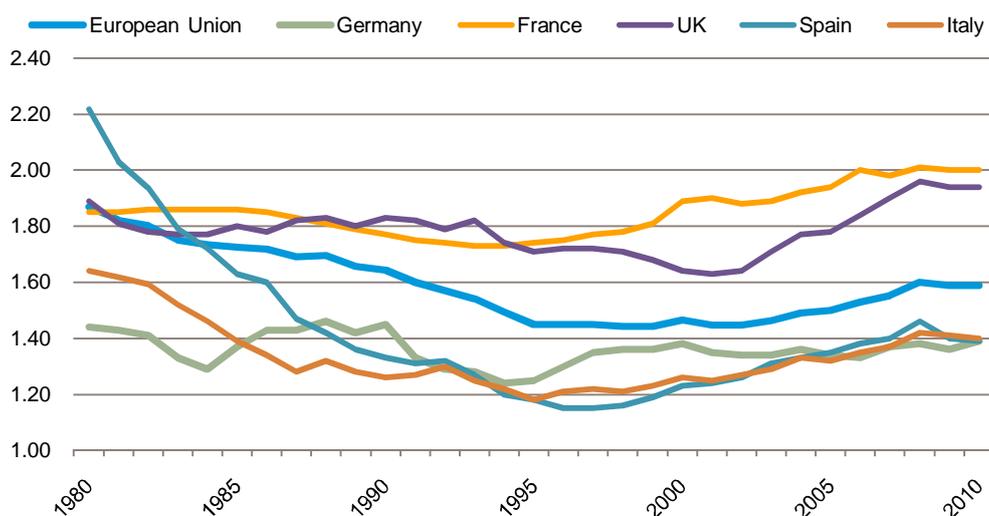
Sources: United Nations World Population Prospects: The 2010 Revision, 2010, RREEF Research, 2012

These forecasts are principally the result of three factors: life expectancy, the fertility rate and net migration.

Life expectancy rates are forecast to increase across all parts of Europe, rising from around 77 years today to close to 87 by the end of the century. Life expectancy in Eastern Europe is set to continue to lag the European average, but will rise faster than other parts of the continent as it converges from a lower current level of 71 years.

In anticipation of global economic convergence, the level of net migration in Europe is forecast to decline during the coming decades. Averaging around 1.8 million per annum during the past decade, the UN forecasts show net European migration falling to 0.6 million by 2050 and just 0.1 million by the end of the century. These lower levels of net European migration would mark a significant shift when compared to the past 20 years, but are not without precedent – during the 1950s and parts of the 1960s, the continent recorded negative net migration. Nonetheless, there are clear risks to the migration forecasts.

### Fertility Rate (Births per Woman) by Country

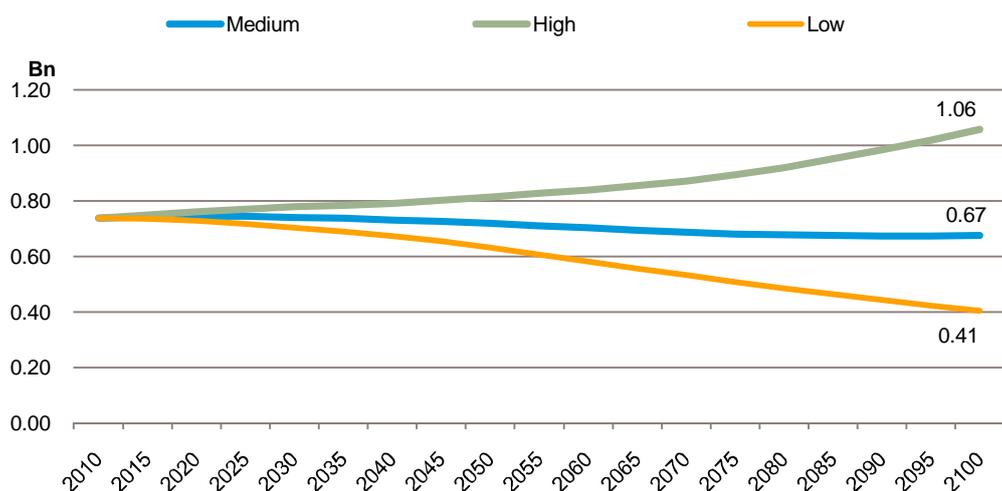


Sources: World Bank, 2011

The central fertility projection for Europe is based upon the total fertility rate returning to replacement levels by the second half of the century, (i.e. slightly higher than two births per woman) from the current level of 1.6 births per woman. Looking at the graph above, would suggest that this could be difficult to achieve, with the EU average fertility rate below this level for at least the past 30 years.

Should this level of fertility be unachievable, and fertility rates remain similar to the current level, it is estimated that the population could decline from around 740 million today to 670 million in 2050 and 480 million by the end of the decade. As shown below, in the low fertility scenario<sup>1</sup>, fertility rates fall even further and the decline is even greater.

### European Population Projection by Fertility Scenario



Sources: United Nations World Population Prospects: The 2010 Revision, 2010

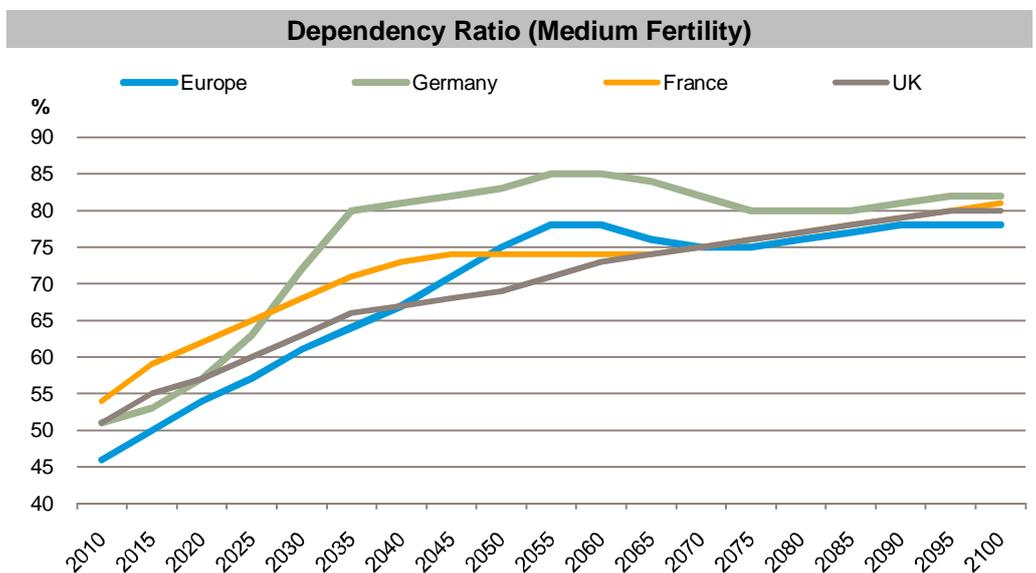
Note: Turkey not included in Europe

The graph above shows the huge range in the potential population of Europe at the end of

<sup>1</sup> In which the fertility rate is forecast to 0.5 births per woman less than the central scenario.

the decade – altering the fertility rate by just half a child more or half a child less, results in outturn population forecasts ranging from 400 million to 1.1 billion. This range of outcomes highlights potential demographic risks but does not provide a clear guide to the long term population outturn.

A common theme across all three scenarios is that the dependency ratio is set to rise sharply over the coming decades. The dependency ratio is the sum of the population aged 0-14 and aged 65+ compared to the population aged 15-64. Currently the dependency ratio in Europe is around 45, which means that for every 100 people of working age (15-64), there are 45 people of non working age. According to the UN's central scenario, this European rate is set to peak at around 78 by the middle of the decade. The rise in dependency is expected to be most marked in Germany, with a surge between 2020 and 2035, before peaking mid-century at 85. In the low fertility scenario, dependency in Germany reaches 95, suggesting that for every working age person; there will be nearly one corresponding person of non working age.



Sources: United Nations World Population Prospects: The 2010 Revision, 2010  
 Note: Turkey not included in Europe

The rise in the dependency ratio is of significant concern. Not only will the reduction in the number of working people weigh upon the total productive capacity of an economy, those of working age will face the increased burden of supporting those not in employment. If state pensions are to be maintained, the rise in old age dependency will require either a rise in taxation or a reduction in other services. The majority of governments across Europe are taking steps to partially offset the rise in the dependency ratio by raising the retirement age; nonetheless these policy changes are unlikely to occur quickly enough to stop a substantial increase over the coming decades.

### Regional Demographics

There have been, and will continue to be, notable differences in the demographics and rates of population change experienced across European regions. For example, across the 429 regions that makeup Germany, total population growth ranged between -30% to +21% over the past ten years.

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There are numerous drivers of these regional demographic differences. There is a generally accepted view that the recent past has seen a continued urbanisation across much of Europe. This is partially supported by a statistically significant relationship between higher population density (a proxy for an urban area) and increased population growth<sup>2</sup> achieved over the past decade, however, the explanatory power is low, suggesting there are other important drivers such as urban regeneration schemes, changing levels of accessibility, employment growth areas and location decisions by age cohort (see next section).

These wide variations in regional and local population changes, suggest that although national level demographic themes provide guidance in real estate investment strategy, additional demographic analysis is required when considering individual asset purchases.

## Age Cohorts

The analysis above shows the difficulty in producing long term population forecasts, and highlights the potential for significantly different outturns resulting from relatively small changes in demographic drivers. When considering the possible implications for real estate, demographic projections beyond ten to twenty years are generally too far in the future to have a significant bearing upon investment strategies.

The next section of this paper looks at a shorter time scale, and considers the changing demographic profile of Europe over the next decade, assessing the changing size of ten year age cohorts between 2010 and 2020. **This shorter time period approach and the analysis of cohorts which (excluding the 2020 age range 0 to10) are already alive, helps to significantly reduce the risk of forecasting error.** This analysis provides a useful insight into the potential growth or contraction of groups which may have a predisposition to certain types of consumption, location demands and real estate usage.

The graph below shows the changing size of European age cohorts. It is of little surprise that the 60+ age groups are forecast to record significant growth between 2010 and 2020. In total, the number of people over 60 is set to increase by almost 28 million people. However, the chart also indicates a large degree of variation between the other age cohorts. The next decade will not be one of a large increase in the older groups matched by a uniform decline across the younger cohorts.

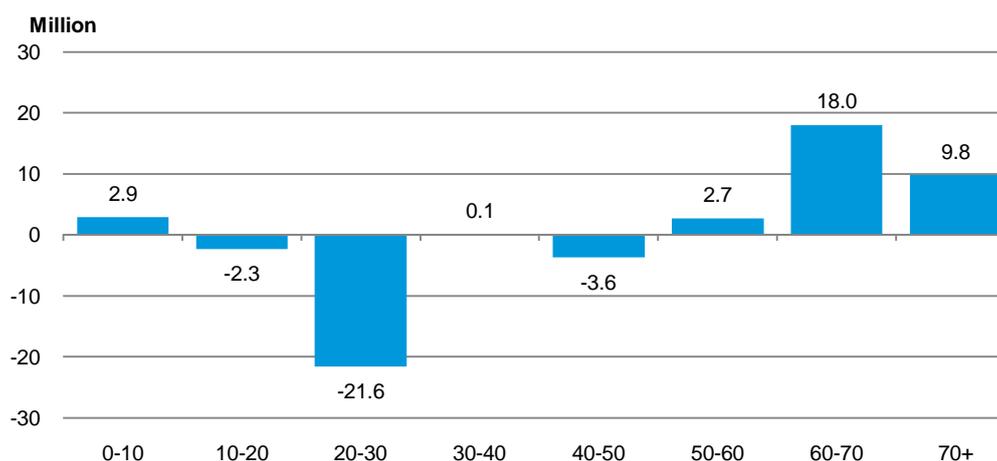
It is striking to see the largest absolute change occurring in the age group 20 to 30, which is due to shrink by almost 22 million people between 2010 and 2020. Given recent anecdotal evidence that high youth unemployment, particularly in southern Europe, is leading to higher outward migration, this forecast (produced in 2010) could underestimate the total decline in this age cohort, while also increasing the risk of demographic forecasting error in countries such as Spain.

Nonetheless, with the current concerns about youth unemployment, this demographic shift, in conjunction with a large number of people reaching retirement age, could prove a boon to those young people leaving school and university at the end of the decade, as they face less competition and gain greater wage bargaining power. Despite the possible benefit to this age group, this does not conclude a benefit to the wider economy or a fall in total unemployment, given neither an implicit rise in total productivity nor an increase in the size of the workforce as a result of these demographic shifts.

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<sup>2</sup> Relative to the national average

### Change in Population of Ten Year Cohorts from 2010-20 (Europe)



Source: United Nations World Population Prospects: The 2010 Revision, 2010

Note: Turkey not included in Europe

Cohort population change will not be uniform across European nations. Almost half of the decline in the European age group 20 to 30 can be attributed to Russia, where the group is set to shrink by over ten million in the ten years to 2020. This is in contrast to the United Kingdom, the Netherlands and Sweden where the group is set to record modest growth.

The table below provides a summary of the percentage change in the size of ten year cohorts across the major European countries in the decade to 2020. It is clear that across all major European countries, the next decade will see a sharp increase in the number of people aged 60 and above – with considerable percentage increases in the Netherlands, Poland, Russia and Turkey. However there are notable differences in the size and direction of movement of the other age cohorts across country. For example, where the number of 30 to 40 year olds is set to fall by around 20% in Spain and Italy in the period, it is set to rise by around 10% in the UK, Turkey and Poland and 16% in Russia.

### Percentage Change in Cohort Population (2010-20)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70+
Europe	4%	-3%	-21%	0%	-3%	3%	25%	11%
France	2%	6%	-3%	1%	-6%	3%	20%	20%
Germany	2%	-13%	-16%	1%	-29%	18%	20%	10%
Italy	-3%	2%	-8%	-23%	-3%	24%	7%	15%
N'lands	-7%	-2%	4%	-9%	-17%	12%	15%	35%
Poland	13%	-18%	-29%	9%	18%	-25%	52%	13%
Russia	8%	3%	-39%	16%	0%	-14%	56%	-5%
Spain	2%	16%	-19%	-21%	15%	29%	21%	17%
Sweden	11%	0%	1%	3%	-4%	11%	-6%	31%
Turkey	-4%	-3%	0%	11%	22%	35%	59%	36%
UK	9%	-2%	1%	9%	-11%	18%	6%	23%

Source: United Nations World Population Prospects: The 2010 Revision, 2010. RREEF Real Estate, 2012

As a point of reference, it is worth taking a brief look at the demographic profiles of a selection of other non-European countries. Across all these countries, the total number of people aged over 60 is also set to increase over this decade, reflecting a combination of rising longevity and the progress into retirement of the post-war “Baby Boomers” in countries such as the United States. In some countries, such as Brazil, Morocco and

India, this is offset by increases in the number of people in the workforce, and a low / negative increase in the number of children. India in particular stands out as a country which is experiencing a fall in its dependency ratio over this period, potentially providing the country with a demographic dividend.<sup>3</sup> In contrast, China, the USA and Japan are set to experience a rise in dependency over this period. Although the rise in dependency is relatively low in China, this is an unusual situation in which a still developing economy is entering a period of rising dependency – thanks in part to the “One Child” policy.

Nigeria shows high growth across all age cohorts, reflecting the rapid population growth being experienced across the West African nation. The population of Nigeria is forecast to rise by 45 million to around 200 million people by the end of the decade, and to around 400 million mid-century – similar to the United States.

Percentage Change in Cohort Population (2010-20)								
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70+
Brazil	-12%	-5%	-4%	13%	14%	28%	51%	45%
China	-8%	-18%	-10%	3%	-4%	29%	54%	36%
Egypt	4%	9%	0%	42%	26%	27%	45%	52%
India	0%	2%	9%	20%	24%	25%	52%	38%
Japan	-5%	-7%	-15%	-22%	9%	0%	-14%	32%
Morocco	-2%	-5%	-3%	21%	21%	22%	72%	29%
Nigeria	25%	31%	24%	34%	43%	26%	25%	36%
US	4%	7%	1%	12%	-6%	2%	34%	31%

Source: United Nations World Population Prospects: The 2010 Revision, 2010. RREEF Real Estate, 2012

## Implications for European Real Estate

Changing demographics have the potential to have a major impact upon real estate. Not only does the rise and fall of the total population level act as one of the key determinates of real estate demand, the changing size of cohorts influences the types, functionality and location of real estate requirements.

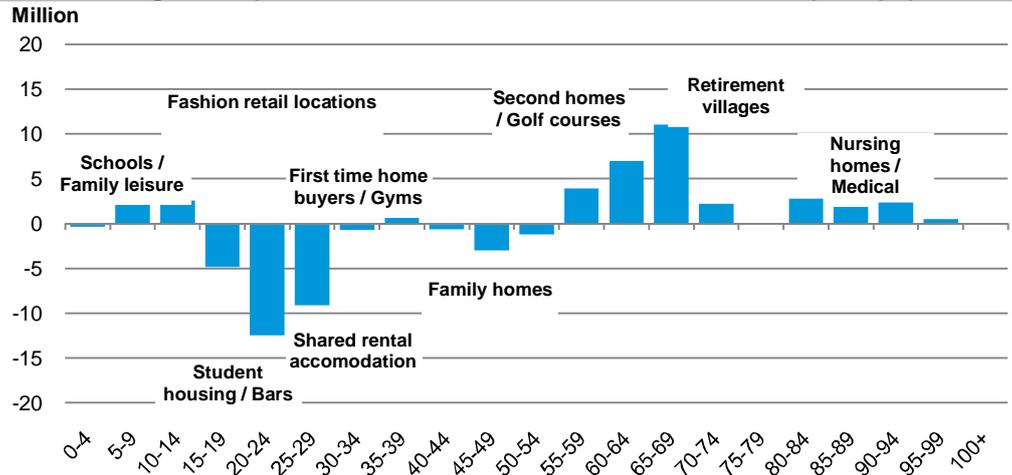
### Life Cycle Real Estate Consumption

The level of demand for different types of real estate changes throughout an individual's lifecycle. Reflecting changes in consumption, requirements and habits, the need for certain types of real estate will rise and fall as a person ages. For example, the real estate demands of a student are likely to be biased towards student housing and higher education facilities, while those of someone over age 75 is biased towards retirement villages, medical facilities and locations with easy access.

The chart below provides an illustrative example of the type of real estate assets that may become more prominent throughout a person's life. Although no one individual is the same, there tend to be common themes throughout different age cohorts that influence total demand for real estate space.

<sup>3</sup> Demographic dividend occurs as fertility rates fall while retired workers remains a relatively small proportion of the population. In conjunction with accommodating economic policies this reduction in the dependency ratio can raise productivity, increase consumption and boost economic output.

## Change in Population of Five Year Cohorts from 2010-20 (Europe)



Source: United Nations World Population Prospects: The 2010 Revision, 2010, Schroders Real Estate, 2012  
 Note: Turkey not included in Europe

The chart above suggests that over the next decade, demographic drivers are likely to weigh upon the demand for student and family housing, and night life venues, but will increase the demand for schools, family leisure, retirement villages and nursing homes.

With a net reduction in the working age population (15 to 65) of over twenty million people, this is also likely to constrain demand for office space. The falls in working age population are most noticeable in Poland, Germany, and Russia. In contrast, the UK is set to see its working age population increase by 2.2% over this period – one of the highest in Europe.

When looking at the changing demographic demand driver for student housing, it looks particularly weak in Germany, Sweden, Poland and Russia of the populations aged 15-25 are set to fall by an estimated 15%, 16% 32% and 33% respectively between 2010 and 2020. In contrast, this age group is forecast to record smaller declines in the United Kingdom, Italy, Turkey and Spain, remain unchanged in France, and even a slight increase in the Netherlands.

Age cohorts are also likely to have dissimilar requirements from communal real estate such as the public realm, retail locations and working environments. These changing requirements may suggest that communal space in aging societies will focus more upon factors such as improved accessibility (i.e. fewer steps) and additional seating and perhaps less upon environments embracing youth culture.

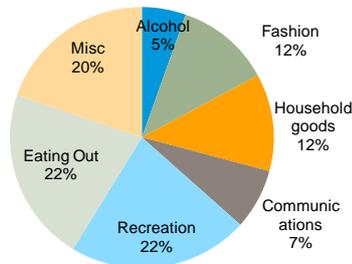
## Consumer Spending Habits

Demographic shifts will likely have implications for consumer spending habits, and retail real estate. In part, the shift in demographics will be detrimental to some current retailers and retail locations, which rely upon young fashion to drive high levels of turnover and sales. The older generation have traditionally spent both less as a total, and less on items found within certain retail locations such as shopping centres.

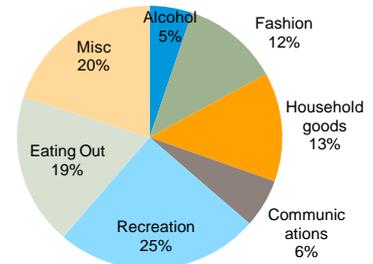
The graph below shows discretionary household spending across four age groups in the United Kingdom, as determined by the main respondent's age. As a share of discretionary spending, the two youngest households spend a relatively high amount on fashion compared to the older households. Although the major high street fashion retailers generally do not tend to focus their product lines towards the age group 30 to 49 years, this group's high spend on fashion is likely to be attributed to spending on fashion for/by their children – particularly teenagers.

### Discretionary Consumer Spending by Age of Main Household Contact

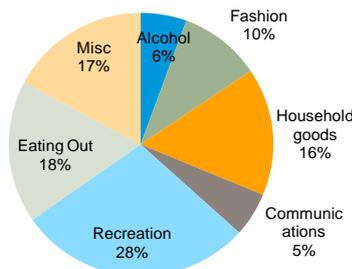
**Less than 30 years old**



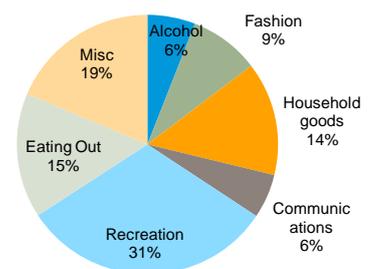
**30 to 49 years old**



**50 to 64 years old**



**65 to 75 years old**



Source: ONS, Living Costs and Food Survey, 2011, RREEF Research, 2012

The change in balance towards an older European population over the next decade would therefore suggest that fashion spending is likely to grow at a slower pace over the coming years.

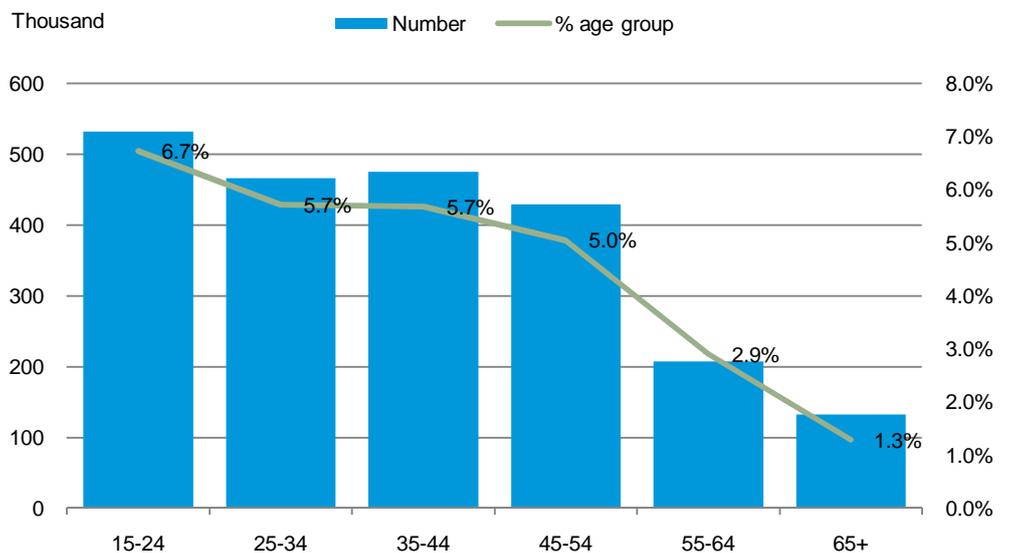
The high street may traditionally be seen as somewhat more suited to the older generation of consumer, but covered shopping centres, with extensive facilities should

increasingly be able to capture older spend by adapting communal areas and readjusting their tenant mixes. Furthermore, the two older age groups spend the greatest share of their discretionary incomes upon recreation. Larger retail locations which can provide leisure facilities may also be able to capture this.

One final and critically important consideration is that consumer spending across age groups is unlikely to be static, and therefore it needs to be continuously monitored in order for retailers and retail locations to meet consumer demands. For example, although the current spending habits shown above, indicate that the older generation spend a relatively small share on fashion, this should not be taken as a given for older consumers in the future. Spending habits are formed throughout a person's lifetime, influenced by levels of income, wealth and national consumption trends. It is possible that European's over the age of 65 who formed their spending habits during the hardship of conflict and post-war austerity have carried these spending habits throughout their life, while younger cohorts who formed their spending habits during increasingly consumerist cultures will maintain a desire to shop throughout retirement.

The graph below provides an example of cohort spending habits changing over time. Where the older generation are typically seen as non-tech savvy, the age group 45-54, which will start to be the next group of retirees in just over a decade, are embracing the most modern technology at a similar rate to younger generations. Having grown up with computing technology, this age group has shown a willingness to purchase tablet computers far in advance of the next two cohort aged over 55.

### UK Tablet Computer Sales by Age Group



Source: TGI GB, Q3 2012

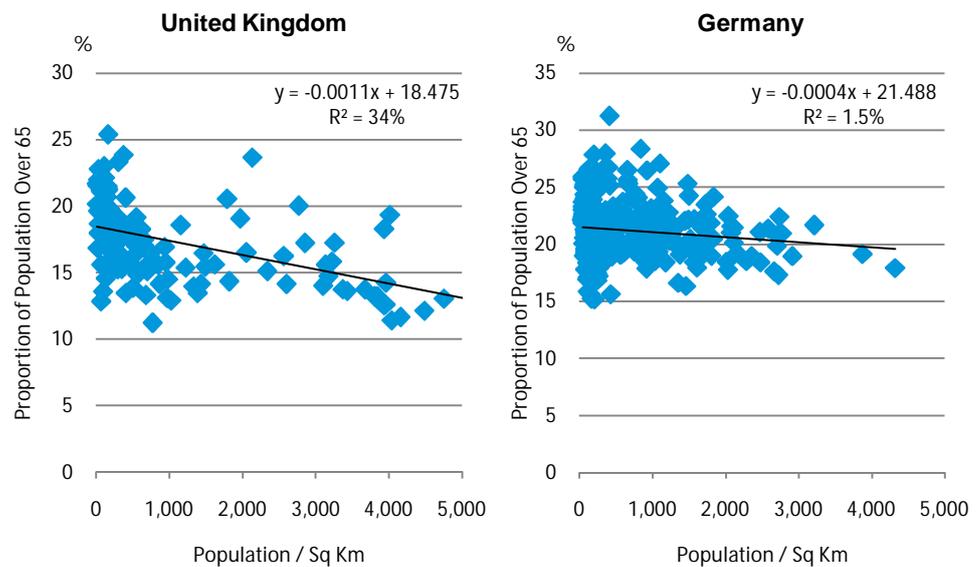
### Location Demand by Age Group

Changes in the size of different demographic cohorts are also likely to impact upon the demand for housing in varying residential locations. Across Europe there is evidence to suggest that age cohorts tend to cluster in particular locations, with the younger cohorts more likely to be located within urban areas and the older / retired cohorts residing in less densely populated areas such as small towns and villages.

The graphs below show the relationship between the proportion of the population over 65 and the population density in an area. In Germany and Italy, regression analysis does show a negative relation between these two factors (i.e. the proportion of people over 65 falls as population density increases); however the data is not statistically significant. In France, Spain and the UK the relationship is negative and also statistically significant.

The relationship is most marked within the United Kingdom. As shown in the graph below, this regression indicates that population density can explain 34% of the variance in the proportion of people over 65 in a region. This regression shows that for every 1,000 increase in the number of people per square kilometre, the proportion of people over 65 in an area of the UK falls by 1.1 percentage points.

### Comparison of Population Density and Proportion of Population 65+



Source: Eurostat, October 2012  
 Note: UK x-axis scale shortened to enable visual comparison. NUTS3 regions

In addition to residential requirements, this analysis suggests that in countries such as the United Kingdom, where there is a strong correlation between population density and average age, investment in other areas of real estate can be targeted towards the demands and requirements of certain age cohorts - as indicated in the sections above. For example, office locations may continue to be biased towards urban centres where the largest proportion of the working age population are located in close proximity, while retirement facilities may concentrate in rural and small town locations.

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## Conclusion

This analysis has shown that the general outlook for Europe over the coming decades is one of an aging and shrinking population. The long term outcome for European demographics is however highly uncertain. This uncertainty is well represented by the 600 million person difference in the forecast 2100 population that would result from a rise or fall in the average forecast European birth rate by just 0.5 children. The task of forecasting population over more than a single generation is therefore extremely difficult.

One longer term trend that does seem clearer is that average life expectancy will continue to rise. This will have implications across many areas such as public and economic policy, pensions and the provision of suitable real estate. The impact of an aging society will change over time in response to a higher retirement age. Nonetheless, the aging of society has already begun, and even over the next decade, the proportion of people over 65 will rise sharply throughout Europe.

Across much of Europe, the dependency ratio is rising, lowering the proportion of working age people. This reduction in the growth of the workforce and diversion of state spending towards areas such as pension provision and old age medical care is likely to weigh upon economic growth for some time.

With the analysis showing that long term projections provide little firm demographic guidance, and real estate investment appraisal often limited to around ten years, an appraisal of the demographic changes over the next decade gives a better and more accurate indication of the changing population drivers of real estate demand.

Although there are significant differences between European countries, there is, across all countries a general trend towards an older population as the post-war baby boomers move into and through retirement. This will have implications for real estate demand, not just in the type of location of residential property, but also across the spectrum of commercial real estate.

In contrast to the rising number of people in retirement, the number of people aged between 15-25 years is set to fall by nearly 20 million between 2010 and 2020 – with notable declines in Germany, Sweden, Poland and Russia. This will have a negative impact upon the demand for certain types of real estate such as student housing, evening entertainment venues and young fashion focused retail locations.

The demographic makeup of Europe is in constant flux, and is continually altering the balance of demand across real estate segments and formats. At a European and national level a number of clear trends are emerging. These trends help to guide strategy, but with clear differences at a regional level, micro level demographic examination will remain imperative when assessing individual asset deals.

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## Important Notes

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