

November 24, 2015

Sustainable Economics

Mind The Inequality Gap

This note focuses on growing inequality in DM countries and how it may impact investment. Inequality is inherent in market processes. However, when persistent, it can harm growth over the long run.

Inequality matters for market participants. It affects consumption, investment, and, at some levels, catalyzes growth, by acting as an incentive. Its nature is complex: it stems from a variety of factors, including random events, economies of scale, capital deepening, and technological progress.

However, when protracted, inequality can disrupt business models, fuel political discontent and trigger policy missteps. This could damage the growth potential. This risk is high in DM, where inequality *within* countries is increasing, in contrast to inequality *between* countries globally, which is diminishing. In the note, we focus particularly on Europe and the U.S.

We address five questions: Why does inequality matter for investors? Is inequality going up or down? How does it affect growth? Will it bring the middle class to an end? Which signals should investors watch out for?

Complementing traditional inequality measures, our MS Inequality Indicator (MSII) maps country performance. Southern European countries and the US score poorly on the MSII. Among the well scoring Nordic countries, Sweden has experienced the largest increase in inequality since the mid 1980s, although the overall score remains comparatively low.

MS stock analysts highlight how companies are adapting to market polarization and how the incentives coinciding with inequality can stimulate innovation and inclusiveness to a certain degree. In particular, technology can help enhance the accessibility, availability and affordability of goods and services, particularly in telecommunication and the automotive sector.

Our analysts highlight the pharma sector as most exposed to rising policy risks, although this is not an exhaustive list. They also point to increasing inequality as an opportunity for companies capable of embracing complexity. This implies best supply chains, best process and technology or even marketing strategies that are able to adapt to changing conditions quickly. Companies our analysts view as well positioned for the growing inequality gap include Nestlé (NESN), Constellation Brands (STZ), Estée Lauder (EL), White Wave (WWAV) and Mondelez (MDLZ) in the staples sector, and Ryanair (RYA), Delta Air Lines (DAL) and Spirit Airlines (SAVE) in transport.

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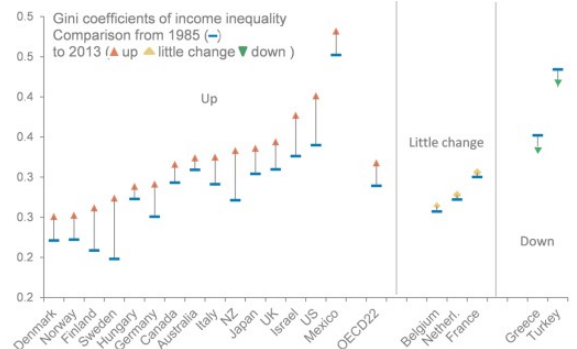
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Exhibit 1: Inequality Up in the OECD since the mid-1980s.



Source: OECD, Morgan Stanley Research

Exhibit 2: Southern European Countries and the US Top MS Inequality Indicator Ranking

	MS Inequality Indicator (MSII)	Gini Coefficients	Wage Dispersion	Workplace Inclusion	Health Status	Digital Access
Portugal	1	4	4	10	4	3
Italy	2	7	10	1	18	1
Greece	3	3	6	14	14	2
Spain	4	6	9	4	16	5
US	5	1	1	19	6	14
Germany	6	13	5	8	5	11
Australia	7	8	11	3	13	9
Austria	8	16	8	13	2	7
Ireland	9	11	14	2	17	6
Canada	10	9	7	7	15	13
Poland	11	12	18	5	12	4
UK	12	2	3	20	11	16
Japan	13	5	2	11	20	15
France	14	10	12	6	19	8
Switzerland	15	14	16	9	8	12
Belgium	16	18	19	16	1	10
Netherlands	17	15	13	12	9	19
Finland	18	19	15	17	3	17
Sweden	19	17	17	15	7	18
Norway	20	20	20	18	10	20

Note: 1 = most unequal. See Exhibit 3 for more information about the ranking methodology. Source: OECD, Morgan Stanley Research

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The Inequality Debate

DEBATE	CONSENSUS VIEW	OUR VIEW
Inequality is rising on various metrics. Should investors care?	No, investors should care only about investment and growth opportunities.	<p>Growth matters but so does its distribution. Inequality is inherent in economic processes but its persistence - when it prevents social mobility and perpetuates discrepancies - is pernicious. It may pose entry barriers to health and education, assets and access to credit, employment opportunities, political representation and basic infrastructure. Thus, rather than working as a catalyst for social mobility (acting as a reward for differences in efforts or responsibility), widening and protracted inequality may trigger social immobility by perpetuating it.</p> <p>Inequality arises due to a variety of factors. For example, it can be triggered by innovation, it can be the result of economies of scale, capital deepening and new technologies. In turn, these changes boost demand for highly skilled workers, and give an advantage to those with access to good education. It can also be triggered by luck or people's choices, including time preference in their consumption and allocation of savings.</p> <p>Measuring inequality is difficult though. For a start it can be apply to different concepts, e.g. gender, pay. Moreover, its notion varies over time and is often linked with social factors (such as again gender or race, class and culture). In this note we focus on inequality of income, wealth and consumption which are particularly relevant from an economic point of view.</p>
Is inequality decreasing globally?	Yes, based on GDP per capita, international income inequality has dropped in recent years.	<p>Inequality <i>between</i> countries globally has diminished but it has risen <i>within</i> several countries, especially in the OECD. The rise of GDP per capita in many emerging countries, especially China and India, in recent years has narrowed the gap versus developing countries, including that of life expectancy. However, income and wealth inequalities within countries, including China, have increased in many countries, including in the US and many European countries.</p> <p>Inequality can become an inhibitor of growth through various channels: 1) business models can be disrupted, as they become bifurcated. This splitting can become riskier and unsustainable over time. 2) government policies can be affected with potential backlashes for economic growth via increased market regulation, protectionist and anti-immigration measures; 3) voters choices can be influenced, potentially degenerating into social unrest. Increased voters' disengagement and disenchantment with politics are also a risk. Furthermore, there could be tensions with grassroots, if the views of the most affluent appear to count more, when it comes to setting policy.</p>
Is this not a policy/political issue?	This is a political issue and is at the heart of those who favor a more interventionist policy approach	<p>This is an economic issue because inequality may distort the allocation of resources, even abstracting from the debate of whether countries should favor a less government interventionist or a more redistributive approach. There might be a threshold beyond which inequality can harm the economy, although determining the 'tipping point' is difficult. Put it differently, 'igniting' growth might be less challenging than sustaining growth if the model of growth is not viable over the long run.</p> <p>Therefore, inequality developments warrant investors' attention. For example, in the countries which score poorly according to the MSI indicator, social discontent seems to be on the rise, judging from the increase in the support for the non-mainstream political parties compared to a year ago.</p>

Mind the Inequality Gap

Summary and Conclusions

Does inequality matter for long-term economic prosperity? That growth matters is well understood but its distribution is often overlooked. Economic growth increases production, boosts living standards and creates jobs. However, the distribution of the income that economic growth generates matters as well. If the distribution is too uneven with a persistent and widening gap between the top and the bottom of the scale, it prevents broad participation in the welfare gains of growth, and, over time, risks corroding the economic and social fabric of a country. As a result, inequality could potentially disrupt business models, social consensus and lead to policy mistakes.

While inequality is not a subject typically discussed among financial market participants, it matters for their investment decisions. Inequality alters the distribution of consumption and savings, as well as the allocation of resources more generally. As a result, it would benefit investors to become more aware of the drivers of inequality in the countries or sectors where they invest. So far, globalization, a widening wage gap, increasing 'underemployment', the divide between generations and amongst the same generation appear to have contributed to a widening trend of inequality *within* many countries. The Great Recession and the financial crisis have exacerbated this (see [Exhibit 1](#) on the cover).

The public inequality debate focuses largely on the eye-catching rich '1%' and redistributive policies but overlooks that inequality is the side effect of dynamic processes such as innovation and social mobility. In fact, evidence of the impact of inequality on economic growth is not clear-cut. Moreover, by focussing largely on the effect that recent technological advancements have had on the labor market - by either substituting jobs with increased automation or widening the wage gap between skilled and unskilled labor - the debate overlooks the progress that technology has brought via better living standards, broader availability, accessibility and affordability of goods and services.

Inequality can become dangerous when it is entrenched though. When it pre-determines individuals' positioning along the income and wealth distribution independently of their efforts, inequality hinders access to opportunities. Therefore, it undermines incentives to work hard and invest in further education and improve skills. It is then that it can take a heavy economic toll on future economic growth. Furthermore, inequality can undermine trust in policymakers and social institutions.

Here, we analyze inequality across DM in recent years, with a special focus on Europe and the U.S. The debate started relatively earlier in the US (see US Economics: [Inequality and Consumption](#), September 22, 2014) where it has already prompted some policy action such as the recent increases in state-level minimum wages, and has recently spread to Europe. In both cases, it has been reinvigorated by the Great Recession, which laid bare the burden of high private sector debt. This year's award of the Nobel Memorial Prize in Economic Sciences to Economist Angus Deaton, citing his lifetime contribution to understanding the relationship between consumption and income, as well as his work on health, well-being and inequality, is emblematic of the prominence of the inequality focus in academia.

In the inequality debate, objective facts that drive the economy matter, as well as subjective perceptions. Indeed, personal perceptions on inequality may differ from actual levels of inequality. A wealth of studies indicates that Europeans perceive their countries to be far less equal than statistics measure, while Americans tend to believe their country is somewhat more equal than statistics show, possibly due to different perceptions of opportunities for mobility. Perceptions are subjective and can vary with time, but they matter for inequality tolerance in a country.

The Morgan Stanley Inequality Indicator (MSII) points to a picture that is more nuanced than what the traditional Gini coefficient might suggest. By aggregating several indicators, especially labor market ones, it captures different aspects of inequality and the fact that it is multi-faceted. **Some countries seem to**

perform persistently worse than others (see [Exhibit 3](#)). For example, Southern European countries and the US score poorly. When assessing *changes* since the mid 1980s, however, the surprise is in the Nordic countries, especially Sweden, which has experienced some of the largest *increases* in inequality in the last 30 years, albeit retaining a comparatively low score.

Exhibit 3: Summary of Selected Inequality Indicators

	MS Inequality Indicator (MSII)	Gini Coefficients	Wage Dispersion			Balance Sheet		Workplace Inclusion			Health Status Gap in Health Status %	Digital Access Internet Access %	
			Change in Gini Coefficients %	Real Wage Growth %	Earnings Dispersion	Gender Pay Gap	Mean to Median Net Wealth	Median Debt to Income %	Secondary Education Unemployment %	Involuntary Part Time %			NEET %
Portugal	1	34	-6.3	-0.5	4.1	16	2.0	134	14.3	3.2	17.3	25	65
Italy	2	33	4.4	-0.1	2.3	11	1.6	50	8.8	6.6	26.1	14	62
Greece	3	34	2.1	-1.7	3.0	7	1.4	47	26.3	3.2	28.5	17	63
Spain	4	34	2.3	0.4	3.1	9	1.6	114	23.0	5.8	26.8	15	76
United States	5	40	6.1	0.7	5.1	18	7.2	133	8.2	1.0	16.0	22	87
Germany	6	29	0.6	0.6	3.4	17	3.6	37	6.9	2.8	9.7	25	86
Australia	7	33	-3.0	0.9	3.5	18	1.6	96	5.2	5.2	13.0	17	85
Austria	8	28	-2.8	0.5	3.3	18	3.6	36	6.0	2.2	9.6	27	81
Ireland	9	30	-0.3	1.9	3.9	13			12.3	5.6	19.2	15	80
Canada	10	32	-0.9	2.0	3.8	19	2.2	161	6.8	3.2	12.4	15	87
Poland	11	30	-5.6	1.2	4.1	11			8.3	1.4	17.0	17	67
United Kingdom	12	35	-2.8	-0.3	3.5	17	1.8	11	4.5	3.4	15.6	19	92
Japan	13	34	2.0	0.0	3.0	27			4.8	3.8	7.2	11	91
France	14	31	4.4	0.9	3.0	14	2.0	50	8.0	4.6	16.3	13	84
Switzerland	15	28	-1.3	1.1	2.7	19			5.6	1.9	9.0	20	87
Belgium	16	27	-5.0	0.2	2.5	6	1.7	80	6.5	1.5	14.9	30	85
Netherlands	17	28	-5.8	0.7	2.9	20	5.0	194	5.9	3.6	8.9	20	93
Finland	18	26	-2.8	0.9	2.6	19	1.9	64	7.6	2.2	12.3	26	92
Sweden	19	27	5.7	1.6	2.3	15			5.9	4.8	9.4	21	93
Norway	20	25	1.0	2.3	2.4	7	1.9	180	3.6	1.0	9.1	20	96

Note: The earnings dispersion is measured by the ratio of 9th to 1st decile limits of earnings. The gender wage gap is the difference between the median earnings of men and women relative to the median earnings of men. The involuntary part-time is as a share of the population. NEET is the share of youth as a percentage of the 16-24 age cohort which is neither employment nor in education or training. The gap in health status is the difference between the perceived status by high-low income individuals. Balance sheet data are for 2010-11 and are not available for Sweden, Switzerland, Poland, Ireland and Japan. All data refer to 2013 or latest available. The average real wage growth is over 2004-2014.

Source: OECD, Morgan Stanley Research

Looking ahead, it is difficult to predict how inequality will evolve, because of its multi-dimensionality: **we highlight three areas that can create opportunities but also potentially exacerbate existing inequalities:**

- **1) outsourcing**, which is increasingly extending from the manufacturing sector - including via offshoring - to services via the rise of the shared economy;
- **2) migration**, a positive in ageing DM countries on many fronts but which could boost inequality during the integration process of migrants into the recipient states;
- **3) technology**, which has transformed the organization of production by polarizing the labor market due to outsourcing and automation but has also relieved workers from menial tasks and improved living standards.

The risk scenario for investors is that rising inequality creates a disenfranchised cohort whose members with inadequate education and low skills are alienated from participation in the economy, thus lowering potential GDP growth. In these countries, we believe **investors should be wary of signs of reform fatigue, social unrest and political discontent** that may destabilize the markets in which they invest or undermine business models.

Key Equity Analysts' Conclusions

The results of our equity research teams' stock analysis of consumer-driven sectors through the inequality lens highlights two dimensions:

- **1) significant market polarization** along the price and quality product spectrum and
- **2) the positive role that technology plays to enhance growth inclusiveness,**

Greater product differentiation, with more price and quality segmentation at the top and the bottom of the offering range, would probably continue should the inequality gap increase. In airlines, for instance, our transport team notes that low cost carriers have been growing market share but premium brands are also experiencing growth.

Overall, our analysts expect that middle-income customers would likely continue to exist but would become more selective. This means that middle-income consumers would be more opportunistic in terms of pricing but also inclined to make the occasional higher-end purchases. **Therefore, companies capable of embracing complexity should outperform,** i.e. the companies that will be able to adapt to changing conditions quickly, implying best supply chains, best process, technology and innovation, even via new marketing strategies.

Mobile devices and the auto sector provide two good examples of how technology has helped to reduce consumption inequalities relative to income inequalities. Our analyst teams show that consumption in these sectors is becoming more inclusive, with companies able to offer broader product options and facilitating access to goods and services, although this does not reduce income inequality. Mobile devices, for example, have provided users with access to communication and the mobile internet and even encouraged financial inclusion in some countries. Our Technology team estimates that 2.5B people in the world own smartphones, compared to about 1.5B owning personal computers (PCs). Moreover, our Autos team argues that innovations like the technology behind autonomous cars, and connected car technology, could provide greater transportation access to the masses, whilst making cars more approachable, affordable and safe.

Inequality of What?

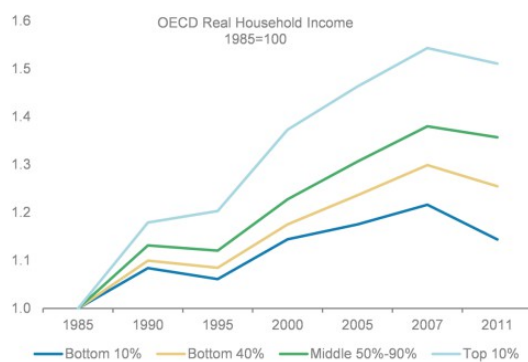
Inequality is a broad and complex concept, with many different facets: it can span from access to education, health services to gender, age or race. Therefore it can be analysed from different angles. From an economic point of view, it is inequality of income and wealth (as well as its repercussion on consumption) that seems to matter, and it is on this that we will focus in this report.

Inequality is inherent in economic processes. In a market economy there will always be winners and losers. For example, for many failed attempts to invent, there are a few successful innovations. These create a temporary advantage and reward the innovators with profits, which partially compensate them for taking risks. Eventually, the profit advantage of those inventors wanes though, as the original idea gets copied and competition increases. The problem arises when the 'winners' are always the same, opportunities are not open to all and 'path dependency' emerges – in other words when the position of individuals in the inequality distribution is 'pre-determined' and discourages them from putting in an extra effort to work harder or get a better education.

Inequality arises due to a variety of factors in addition to innovation: for instance, it can be the result of **economies of scale, capital deepening and new technologies**, which can improve productivity, but also determine a different allocation of labor resources, for example by introducing a 'skill bias' in the demand for labour that might force lower-skilled workers to exit the labour force. It can also be triggered by **people's choices**, including different life-style and time preferences, both with different allocations to consumption and savings. Finally, it could be the result of random events such as **luck**, as Bank of England Governor Mark Carney also recently observed. ^[1]

Low wage gains and private sector household debt have contributed to widening inequality within DM. This has likely been exacerbated by QE. Exhibit 4 shows that since the mid 1980s, household disposable income bottom 10% has risen by ~ 15% whilst the top 10% by ~50%. Therefore, widening inequality has attracted increasing attention from policymakers, international institutions and media. Indeed, since the height of the financial crisis in 2008, press communiqués of G20 leaders' summits have regularly featured words such as 'social inclusion' or 'inclusive recovery' among their pledges, referring to the need to broaden the distribution of the 'dividends' of prosperity. In 2008, with its first report, 'Growing Unequal?', the OECD also started ringing the alarm bell about pervasive, decades-long rise in income inequality. Finally, the 'Occupy Wall Street' movement in 2011 broadened public awareness of the debate about widening inequality.

Exhibit 4: OECD Lower Incomes Lagging



Note: the lines represent household size-adjusted disposable income.

Source: OECD, Morgan Stanley Research

Inequality is not a 'static' concept. The UN states that the reduction of inequalities is justified by equity consideration, where equity is defined by 'a degree of equality in the living conditions of people, especially in terms of income and wealth that *society considers desirable*'. ^{[2] [3]} The last three words are key as they imply that what is considered 'unequal' varies over time and is often linked to social factors (such as gender, race, class and culture), as well as lack of social mobility and factors that lead to persistence.

Moreover, it is a different concept from unfairness or poverty, although often the three notions are used as synonyms. From an economic perspective, inequality has more to do with the distribution of income and wealth and the lack of access to resources and opportunities to fulfil one's potential. In contrast,

unfairness requires an element of judgment, and poverty refers more to a lack of resources to maintain basic living standards and to participate in the normal aspects of life (which could also be a relative, as opposed to an

absolute, concept, varying with time and social factors). Putting it differently, inequality has to do with the differences in living standards and not with their absolute levels.

Inequality of income is also different from wealth inequality. This difference is quite important when measuring inequality and could lead to different conclusions depending on the metrics used.

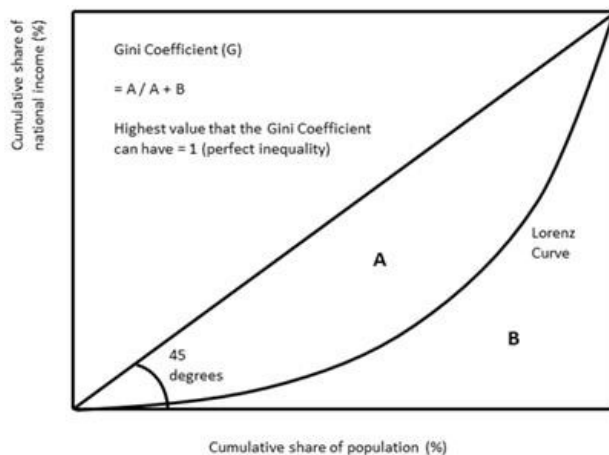
- **Income is a 'flow' variable** that remunerates the factors of production (labour and capital) over a period of time. In the case of labour, as well as wages and salaries, it includes income from financial assets (dividends and interest rates), rents from properties, and welfare benefits, in the countries where they exist, during a set period.
- **Wealth is a stock concept**, which measures the value of all assets owned by an individual, a company or country (whether tangible or intangible). It accumulates over time and can generate income (for example rents, stock dividends or interest paid to owners of capital).

Often, but not always, the distribution of income and wealth is correlated.

Measuring inequality is difficult. For a start, most measures typically focus on monetary variables since non-money income or wealth (such as job satisfaction or the benefit that an individual may get from certain services like education or housing, for example) cannot be measured easily and may not be observable. Also, the time frame over which income or wealth is measured can lead to different conclusions. This is important, as inequality measures typically take a snapshot of a distribution but do not take into account lifetime prospects.

The Gini Coefficient

Graphically, the Gini coefficient can be easily represented by the area between the Lorenz curve and the line of equality.



The Lorenz curve maps the cumulative income share against the distribution of the population. If each individual had the same income, or total equality, the income distribution curve would be the straight line in the graph – the line of total equality. The Gini coefficient is calculated as the area A divided by the sum of areas A and B. If income is distributed completely equally, then the Lorenz curve and the line of total equality are merged and the Gini coefficient is zero. If one individual receives all the income, the Lorenz curve would pass through the points (0,0), (100,0) and (100,100), and the surfaces A and B would be similar, leading to a value of one for the Gini-coefficient.

And, whose income do you measure? This raises the question of how to define the income unit (per capita, per household?) and how to compare units of different sizes. For example, if a man is married with two children and his only source of income is \$20,000 per year, his households could be treated as a unit (and therefore the

income would be shared among the other members of the family), or he could be treated as a separate unit (in which case his wife and children would have no income and boost measured inequality). Usually the narrower the definition of the income unit, the larger the measured inequality. ^[4] Furthermore, the timespan over which inequality is measured is important for the conclusions drawn.

In terms of metrics, the most commonly used measure is the Gini coefficient, which varies between 0 (complete equality) and 1 (complete inequality). In simple terms, the coefficient compares the income or wealth distribution of a population, a country or a region, to a perfectly equal distribution where every citizen has equal wealth (see box below). ^[5]

The Gini coefficient is very popular, because it is a synthetic indicator and is quite easy to understand; however, it has limits. For example, two different income distributions can have the same Gini coefficient (see [Exhibit 5](#)).

Exhibit 5: Different income distributions with the same Gini Index

Household number	Country A Annual Income (\$)	Country B Annual Income (\$)
1	20,000	9,000
2	30,000	40,000
3	40,000	48,000
4	50,000	48,000
5	60,000	55,000
Total Income	\$200,000	\$200,000
Country's Gini Index	0.2	0.2

Source: FAO

Alternatively, two same income distributions can have different Gini coefficients depending on how the sample is grouped (see [Exhibit 6](#)).

Exhibit 6: Same income distributions but different Gini Index

Household number	Country A Annual Income (\$)	Household combined number	Country B Annual Income (\$)
1	20,000	1 2	50,000
2	30,000		
3	40,000	3 4	90,000
4	50,000		
5	60,000	5 6	130,000
6	70,000		
7	80,000	7 8	170,000
8	90,000		
9	100,000	9 10	270,000
10	110,000		
Total Income	\$710,000		\$710,000
Country's Gini Index	0.303		0.293

Source: FAO

Moreover, it is very sensitive to outliers and it is not additive across groups (i.e. the total Gini of a society is not equal to the sum of its sub-groups). Finally, it is calculated sampling the income of individuals at different points of their lives (for example, a student's negative income for an education loan is different from the negative income of an older unemployed individual).

For this reason, the Gini coefficient is often complemented or substituted by alternative measures,

such as the percentile dispersion ratio, which measures the share of income/wealth of the poorest 'x'%. This ratio is calculated by dividing the top percentile, for example the average income of the richest 10% of the population, by the bottom one – in more equal societies, this ratio would be one or below, meaning that the top 10% does not receive a larger share of the national income than the bottom 10%. Other common metrics are the Theil and the Atkinson indices, for example.

The control for age is particularly important when assessing the distribution of income and wealth.

Consider a hypothetical society where everyone earns the same and saves 10% towards retirement: the young people would have no wealth (because they would be at the start of their working careers), the older cohort would have little wealth too because they would no longer be saving and the people close to retirement age would be relatively wealthy and about to start dissaving. So the distribution would be highly unequal, even if the lifetime income would be exactly the same for everyone, because it is a cross-snapshot at a given point in time.

Has Inequality Gone Up or Down?

The difficulty in defining and measuring inequality explains why there is ambiguity in research on inequality, as different conclusions can be drawn depending on the metrics used and the sample examined.

Global inequality appears to be falling. When making international comparisons, countries' levels of prosperity are typically measured by GDP per capita (PPP). On this count, the world has been heading in a better direction over the last 20 years: not only has the level of world GDP more than doubled (from \$6,167 to in 1994 to \$14,393), meaning that global wealth has increased, but there has also been a degree of convergence among country incomes per capita.

Exhibit 7: Global GDP Per Capita Has More Than Doubled Since the Mid-1990s

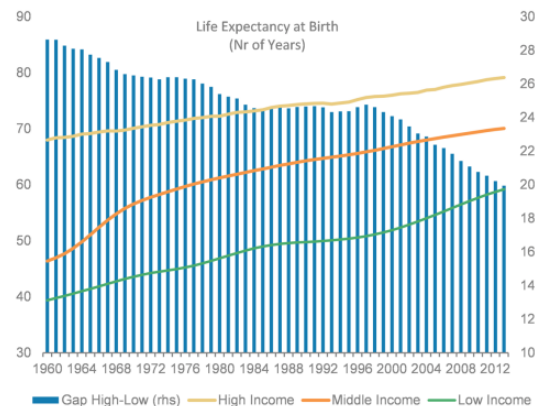


Ratio between GDP per capita (PPP) in 2014 and in 1994.
Source: World Bank, Morgan Stanley Research

...and between-country income has converged somewhat. There has been a decrease in the global Gini coefficient from the late 1980s from 72 points to 67 in 2011^[7], largely driven by the fast growth rates of China and India, and between 2008 and 2011, also because of lacklustre economic growth in rich countries in recent years. The average real per capita income, calculated from Chinese household surveys, has increased by 45% between 2008 and 2011; in India – the increase was by 11%.^[8] Life expectancy has risen globally too, especially in low-income countries since the beginning of the millennium, reducing the gap with richer countries (see [Exhibit 8](#)).

The world is wealthier... In 2014, global GDP per capita was 2.4 above the level of the mid-1990s, with above average gains for middle income countries and in many developing countries, especially in the East Asia and Pacific regions, as well as those in Europe and Central Asia (see [Exhibit 7](#)). Importantly, the high-income countries' GDP per capita (PPP) was 26.5 times that of low-income countries in the mid-1990s, and in 2014 the ratio had shrunk to 25.3. At the same time, the ratio of high-to-middle income countries narrowed from 6.8 to 4.2.^[6]

Exhibit 8: High-Low Income Country Life Expectancy Gap Shrinking



Source: World Bank, Morgan Stanley Research

Income inequality within many countries is increasing

Within many developed and developing countries though, the distribution of income between households is more unequal now than it was two decades ago... In emerging economies, although levels of inequality tend to be higher than in most OECD countries, trends have been mixed in recent decades, with evidence of narrowing income gaps in most Latin American countries since the late 1990s, and signs of a halt in the rise in some other countries, including China and Russia, since the mid-2000s (see [Exhibit 9](#)).^[9]

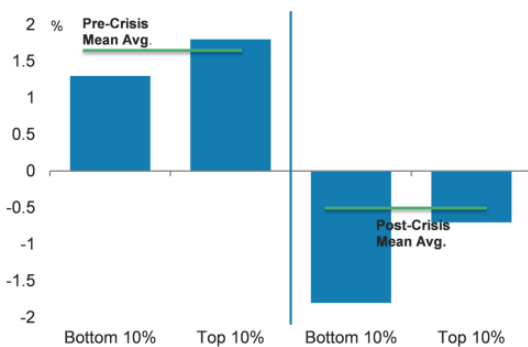
...especially within the OECD (see [Exhibit 1](#), front page). Compared to 1985, in 2011, real household income was higher across different percentiles of the income distribution. This implies that **even the less well-off were better off compared to the mid- 1980s.**

Exhibit 9: Inequality Has Gone up in Some Brics and Down in Others



Source: World Bank,

Exhibit 10: Bottom OECD 10% Household Real Income Lagging

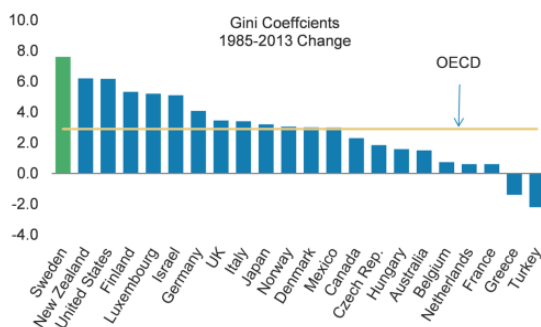


The pre-crisis period is from the mid-1980s to 2007-08. The post-crisis period is from 2007-08 to 2012.

Source: OECD, Morgan Stanley Research

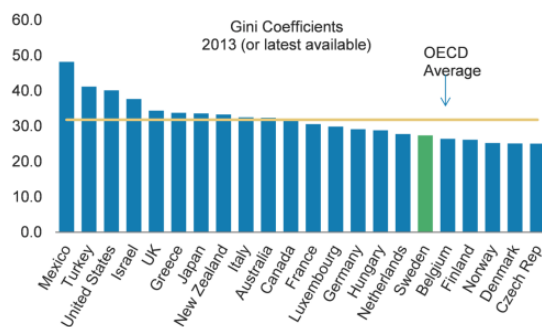
time, explaining 13% of total income inequality (up from 8% in the mid-1980s). At the same time, a downward trend in redistribution was also observed with transfers as a share of household income dropping from 27% in 1995 to 16% in 2008, despite remaining well above the OECD average. These findings were echoed by the Institute of Economic Affairs. [11]

Exhibit 11: Sweden Had the Largest Inequality Change since the mid-1980s...



Source: OECD, Morgan Stanley Research

Exhibit 12: ...But Its Inequality Level Is Still Relatively Low



Source: OECD, Morgan Stanley Research

However, the gap between the top and the bottom 10% has widened persistently over that time frame

(see Exhibit 10), and even after the Great Recession, when both categories experienced a contraction of real income. The same is true of the gap between the top 10% and the bottom 40%. For OECD members, above-average gains perhaps surprisingly were experienced in Sweden, which is typically known for its state income redistribution policies, followed by the United States and New Zealand. In the euro area, the countries which stand out are Finland and Germany.

Sweden tops the OECD list of countries where income inequality has risen the most

(see Exhibit 11). The case of Sweden is interesting because despite remaining one of the OECD's most equal countries, it has experienced one of the largest increases in income inequality since the mid-1980s (see Exhibit 12). [10] According to the OECD, the average income of the top 10% of income earners relative to the bottom 10% rose to 6.3 times, up from 5.7 times in 2007 and 4 times during much of the 1990s.

The rise stems largely from **widening gaps in market income sources**: gross earnings, self-employment income and capital income have become more unequally distributed. At the same time, the notoriously generous welfare system **reduced benefits**, with transfer to households falling from 27% in 1995 to 16% in 2008.

Capital income, in particular, played an important role in Sweden

as it became more concentrated over time, explaining 13% of total income inequality (up from 8% in the mid-1980s). At the same time, a downward trend in redistribution was also observed with transfers as a share of household income dropping from 27% in 1995 to 16% in 2008, despite remaining well above the OECD average. These findings were echoed by the Institute of Economic Affairs. [11]

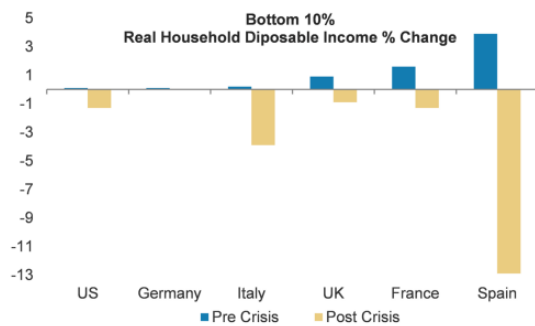
The US is the country where real disposable income expanded the least before the Great Recession.

This is true on average across the population and for the bottom 10%, when compared with other large European countries. Prior to the Great Recession (1980-2008), average US households' real disposable income

rose by 0.9%, compared to 0.1% for the bottom decile. **Perhaps less appreciated is the fact that in Germany the pattern has been similar,**(see [Exhibit 13](#)) and in contrast with that of France and Italy. Post the Great Recession, the bottom 10% experienced real income contractions in all countries bar Germany (where real income stagnated), with the largest contraction in Spain.

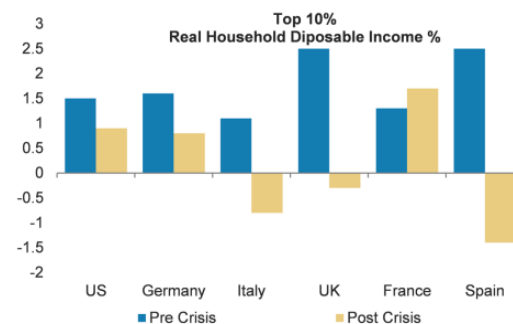
Looking at the top 10%, real household disposable income rose in all countries before the crisis, and fell in only three after the crisis (with the largest contraction in Spain, followed by Italy and to a lesser extent the U.K, see [Exhibit 14](#)). Interestingly, in France it rose before the crisis but even more so after, as capital income increased as a share of total income more than in other countries.

Exhibit 13: Stagnant Bottom 10% Household Real Disp. Income in US, Germany and Italy Pre-Crisis



The pre-crisis period is from the mid 1980s to 2007-2008, the post-crisis is from 2007-2008 to 2012. Annual averages.
Source: OECD, Morgan Stanley Research

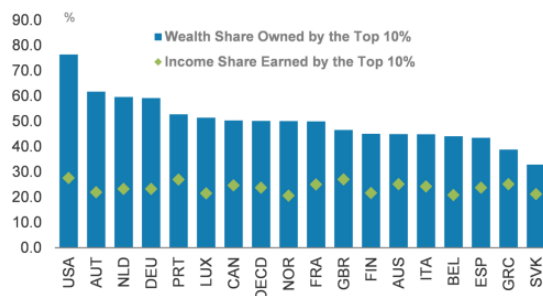
Exhibit 14: Top 10% Household Real Disp. Income Rose in US, Germany and France Also Post Crisis



The pre-crisis period is from the mid 1980s to 2007-2008, the post-crisis is from 2007-2008 to 2012. Annual averages.
Source: OECD, Morgan Stanley Research

Wealth inequality is greater than income inequality

Exhibit 15: Wealth Disparity Bigger Than Income Disparity



Household size adjusted disposable income and new private household wealth. The OECD average includes 17 countries.
Source: OECD, Morgan Stanley Research

Wealth inequality is bigger than income inequality not only because **financial and real estate assets are unevenly distributed but also because many accrue to top both income and wealth of households (see Exhibit 15). Moreover, it can be inherited**, a factor that can 'self-perpetuate' wealth concentration. Based on the 2010 household financial country surveys, on average in the EU, the share of households that have inherited wealth is 33%, with the lowest share in Luxembourg (28.9%) and the highest in Cyprus (44%).

In the US, inheritances play a major role in the wealth distribution accounting for an estimated one-quarter of total household wealth accumulation. ^[12] On average roughly 30% of households receive wealth transfers that account for close to 40% of their net worth near

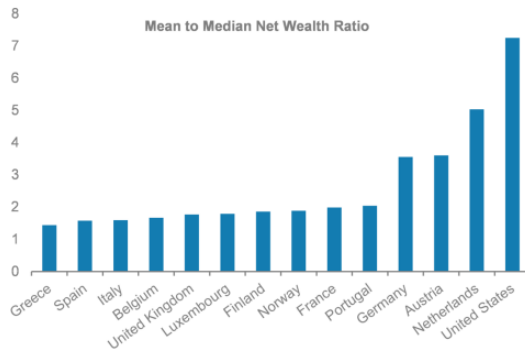
time of death. ^[13]

Globally, most of the people in the 'eye-catching' top 1% are still in the OECD: one half of them are Americans (the richest 11% of Americans). From other rich and relatively populous countries (Germany, France, Japan, UK) 4-5% of their population belong to the global top 1%. ^[14]

Among rich countries, the top 1% of households accounts for 18% of total OECD household wealth, and the top 10% for 50%. By contrast, the bottom 60% owns 13% and the bottom of 40% accounts for only 3%.

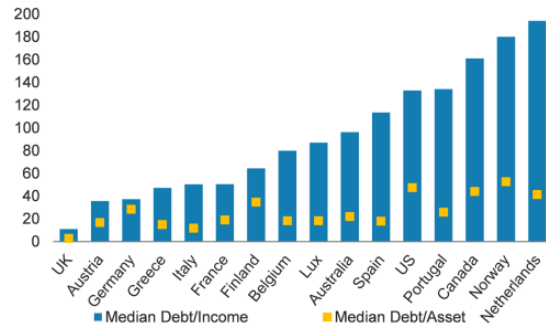
Mean net wealth is 2.5 times larger than median net wealth in the OECD, across the 18 countries covered by the wealth distribution database (see [Exhibit 16](#)).^[15] This ratio gives a measure of the ‘skew’ of the wealth distribution and is better suited than conventional measures such as the Gini coefficient because a large proportion of households have zero or negative wealth. By comparison, the equivalent ratio of mean versus median income is between 1.5-2 in the case of household income for most OECD members for which data are available but much higher in the US, the Netherlands, Austria and Germany.

Exhibit 16: The Highest ‘Skew’ of the Wealth Distribution Is in the US



Source: OECD, Morgan Stanley Research

Exhibit 17: Household Debt Is Also High



Source: OECD, Morgan Stanley Research

Wealth stored in financial assets is much more concentrated than in non-financial assets at the top.

Typically the family residence, and real assets in general, are the main source of wealth (~75%) for households. However, on average households in the top 5% have a mean value of financial wealth that is 70 times the value of those in the bottom 5%, compared to 30 times for non-financial assets. As a result, higher financial asset prices tend to boost wealth of the top 10% comparatively more.

Has quantitative easing played a part in boosting inequalities? The degree of extraordinary stimulus that central banks in industrialized countries have put in place since 2008 – both through conventional tools, via lower short-term interest rates, and unconventional, through widescale asset purchases – raised a range of asset prices, benefiting their holders, and lowered yields, benefiting borrowers at the expense of savers. But low interest rates have also helped highly indebted households. Thus, the impact of Q/E on inequality is not clear cut. Faced with increasing criticism that Q/E has been directing more money to the wealthy, central bankers have also reacted along the same lines, stressing that in the absence of Q/E the slump could have been worse: there could have been a bigger drop in wages than employees would otherwise have experienced and more job losses, because economic growth would have been lower and unemployment higher. Former Fed Chairman Ben Bernanke, whilst acknowledging that monetary policy certainly affects the distribution of income and wealth, recently concluded that whether the *net* effect is an increase or reduction inequality is unclear.^[16]

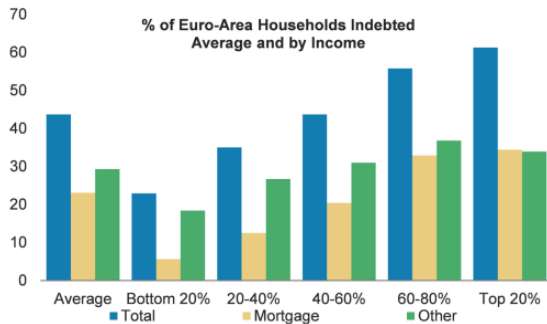
More than just a story of the ‘rich getting richer’. The overall wealth and income gap has widened not just because of dynamics at the top end of the distribution but also because the income of those at the low end or in the middle has stagnated. Typically, in a neoclassical growth model, a higher return on capital investment is only temporary because the marginal product of additional units of capital declines (i.e. there are diminishing returns). However, the ability of technological progress to displace jobs and the ensuing squeeze on wages prevented a catchup effect from labour. Reduced unionization, an increased disconnect of wages from productivity and, finally, globalisation – which reduces demand for rich-country labour - are also among the many reasons that have been brought forward to explain the ‘wage squeeze’. Finally, consumer price deflation, especially of manufactured goods, stimulated households’ overspending.

The Burden of Debt

The “let them eat credit” theory. One suggested hypothesis for the steep rise in household borrowing that preceded the financial crisis is that low- and middle- income households increased their debt to finance higher

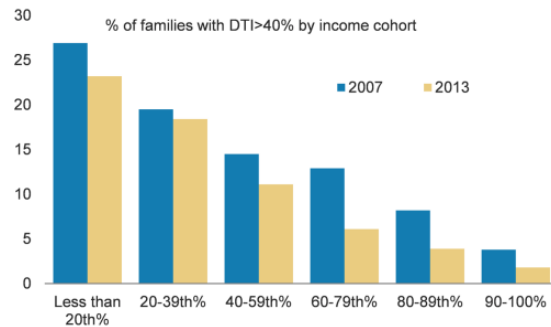
consumption in order to "keep up" with higher-income households, with the high leverage not just in the US (see [Exhibit 17](#)). Furthermore, easy accessibility, cheap credit and low inflation allowed low-income earners to ignore the rapidly growing gap between their stagnant income and mounting debt.^[17] At the 2015 World Economic Forum, Bank of England Governor Mark Carney, evoked Rajan's 'let them eat credit' expression to refer to this rise in debt, which he also attributed to financial innovation, adding that not all of it was good.^[18] His comments were echoed by the conclusions of a recent OECD report which maintains that countries with bigger banking sectors suffer weaker growth and worse inequality.^[19]

Exhibit 18: European Household Debt Concentrated Among Middle and Higher Incomes



Source: ECB, Morgan Stanley Research

Exhibit 19: Low-Income American Households Still Highly Leveraged



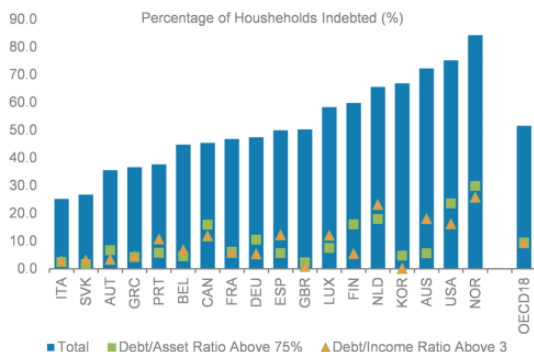
DTI is Debt to Income.

Source: Federal Reserve Board, Morgans Stanley Research

Whether it was inequality that fuelled a steep rise in debt and what role banks may have played is still contentious. For example, recent research in the US concluded that there is no causality between inequality and debt because it found that (over 2001-2012) low-income households in high-inequality regions accumulated less household debt than low-income households in low-inequality regions. Moreover, it suggests that the banking sector may have played an important role in the channeling of credit (in other words, banks use applicants' background information to assess their credit limits and therefore may have given less credit to low-income earners from high-inequality settings).^[20]

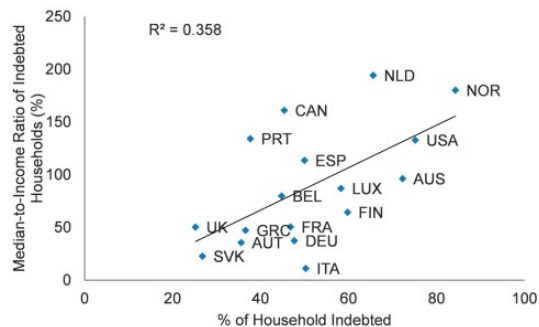
The fact remains that close to 10% of OECD households are 'over-indebted', i.e. their debt-to-asset ratio is over 3 times, in 18 countries surveyed, with the largest of these ratios in Norway, Australia and the US (see [Exhibit 20](#) and [Exhibit 21](#)). In the euro area, the degree of leverage increases with income levels, and it is relatively smaller for the bottom 20% (see [Exhibit 18](#)). In contrast, in the US, where income growth has remained sluggish, low-income households have not been able to deleverage to the same extent as high-income households (see [Exhibit 19](#)).

Exhibit 20: About 10% of OECD Households Are 'Over-indebted'



Source: OECD, Morgan Stanley Research

Exhibit 21: The Higher the Share of Indebted HHs, the Higher Their Median-to-Income Ratio



HHs in the title means households.

Source: OECD, Morgan Stanley Research

The End of the Middle Class?

Faced with stagnant wages, high debt and rising costs, the middle class is eroded by rising inequality.

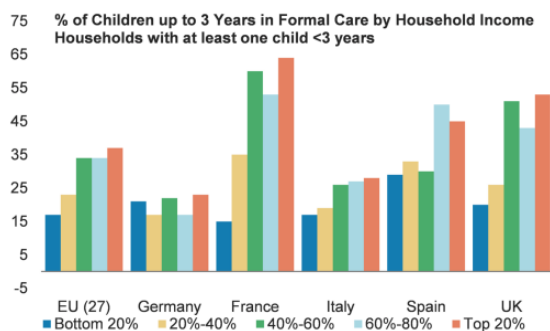
The middle class is an 'ambiguous' social classification, broadly reflecting the ability to lead a comfortable life.

^[21] Past generations of middle-class families, emerging from the post-WWII period, could aspire to improving living standards, with a reasonably sized house, a good education for their children, dependable pensions and a steady pension income flow. In contrast, middle class aspirations are now running up against the wall of job and retirement insecurity.

Furthermore, cutbacks in public social spending are encouraging the middle class to allocate an increasing amount of their income to childcare costs... For example, in the OECD, the average cost for childcare is 11.88% of parental net income (calculated on a family where two parents earn average wage), with Greece at the lower end of the distribution (4.9%) and the UK at the top (26.6%) (see [Exhibit 22](#)). ^[22] In turn, high childcare costs have other negative side effects, creating incentives for parents (mostly women) to not return to full-time jobs, thus reducing participation rates and lowering potential income.

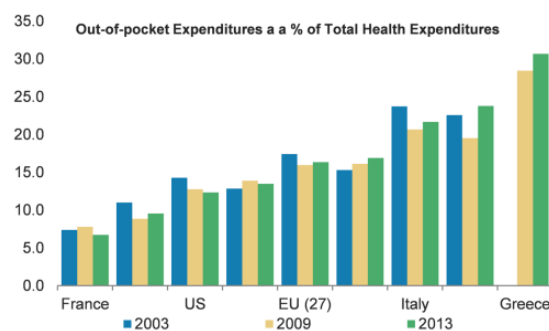
... and healthcare spending and pension savings. Out-of-pocket spending on healthcare has grown in recent years, as governments in a number of countries have introduced cost-sharing measures, often means tested, including lower reimbursements for pharmaceuticals, dental treatments and charges for hospital care. In the EU there were two clear trends before and after the Great Recession: they reduced between 2003 to 2009 from 17.38% to 15.96%, and then started to grow until 2013 when they reached 16.34%. ^[23] In contrast, they fell to 12.3% in 2013 in the US, from 14.3% in 2003. There are significantly different country patterns in the EU, though, as spending rose in Italy, Spain, Portugal Greece and Ireland (countries that were deeply affected by the Great Recession) and to a lesser extent also in the UK (see [Exhibit 23](#)).

Exhibit 22: Rising Childcare Costs Hitting the Middle Class



Source: Eurostat, Morgan Stanley Research

Exhibit 23: Out-of-Pocket Health Expenditures Also Up in Selected EU Countries



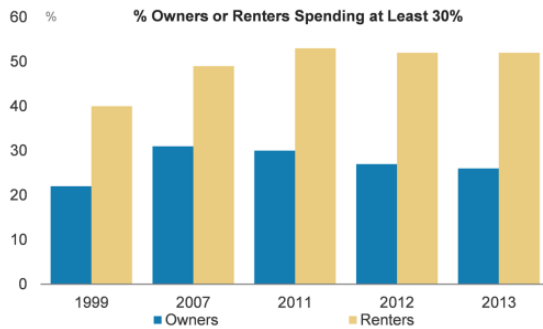
Source: OECD, Eurostat, Morgan Stanley Research

Trends differ by countries but in general, property can no longer be relied upon for wealth creation, in contrast to the past. In 14 out of 23 OECD countries for which data are available, measures of affordability (like house prices relative to income) signal that house ownership is beyond reach for new real estate market entrants, especially young people.

Even for renters costs are high (see [Exhibit 24](#)). In the US, between 1999 and 2007, the housing cost burden rose for both homeowners and renters as home prices and rental costs soared. But between 2007 and 2011, it dropped for homeowners whilst the share of renters with high cost burdens increased. In 2013, more than half of all renters (52%) still had high cost burdens about twice those of homeowners (26%). ^[24] The trend is similar in the UK, as renting costs rise ahead of pay and more people are struggling with the high costs of raising a deposit for a mortgage. PWC estimates that in 10 years time, about 25% of those aged 20-39 years (the so called 'Generation Rent') will own their own home, down from 38% in 2013. House ownership on average

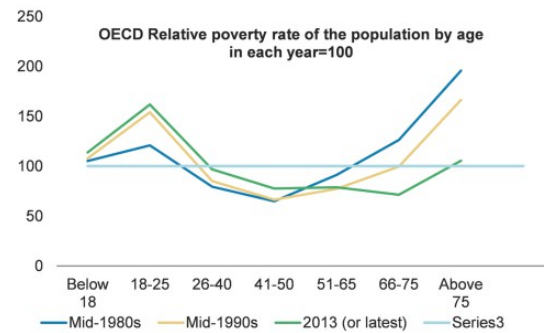
across the age classes would continue to go up though, as the generation of the baby boomers extinguishes its mortgages. .

Exhibit 24: US Renters Face Higher Costs Than Owners



Source: US Census Bureau, Morgan Stanley Research

Exhibit 25: Intergenerational Divide Rising



The x axis shows age brackets.

Source: OECD, Morgan Stanley Research

The gap in housing accessibility between owners and renters exacerbates the economic divide

between older and younger age groups because older people are more likely to be homeowners. In 2013, 48% of American householders aged 25 to 44 owned their home, compared with 72% of those aged 45 to 64 and 78% of those ages 65 and older. In the euro area, 57.1% of those aged 35-44 own a house compared to 71% above 65 years.

The gap in housing accessibility between owners and renters exacerbates the economic divide

between older and younger age groups because older people are more likely to be homeowners. In 2013, 48% of American householders aged 25 to 44 owned their home, compared with 72% of those aged 45 to 64 and 78% of those ages 65 and older. In the euro area, 57.1% of those aged 35-44 own a house compared to 71% above 65 years.

Intergenerational divide has been on the rise for a while. In the mid-1980s the elderly group was the one most at risk of poverty (see [Exhibit 25](#)); now it is the young people. In the US, since 1974, median personal income has increased fairly steadily among those aged 65+, in part reflecting the expansion of Social Security and also a rising share of older Americans in the labor force since 1990s. In contrast, income of those aged 25-34 has fallen and is now even below that of the baby boomers, ages 55-64.

At the same time, as well as reducing other types of social spending (see [Exhibit 26](#)), **many governments have embarked on pension reforms to address prospective pension deficit and have favoured current over future pensioners**, especially in crisis-hit Southern Europe. The only exception is Italy, which improved the intergenerational burden-sharing by cutting the *current* and not the future ratio between pensioners' income and the income of the active working population. [Exhibit 27](#) shows the 'benefit ratios', i.e. the ratio of income of pensioners divided by the income of active working populations. For pension reforms not to affect intergenerational equity, this ratio should remain unchanged. Instead, the exhibit shows that after the pension reforms implemented following the Great Recession, in many countries projected benefit ratios for 2060 (i.e. when people who are currently 20 years old will probably retire) have fallen even below the projections made prior to the recession.

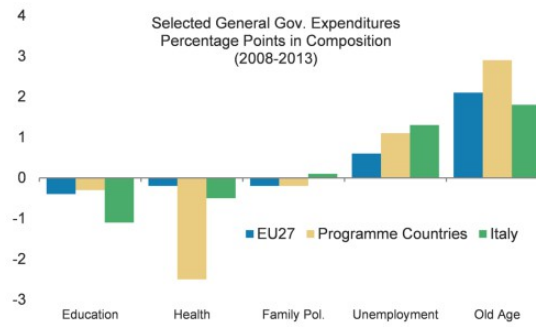
The divide has partly been exacerbated by the Great Recession, with rising job uncertainty, youth unemployment and youth poverty rate increased, accompanied by lower government spending away from education, families and children towards pensioners and unemployed. Cyclically, youth unemployment now reacts much more strongly to recessions than total unemployment, in part because younger workers disproportionately are on temporary contracts. ^[25] Also, it has proven more difficult for young people to get a job during a recession.

This has left a dangerous legacy... Rising levels of government debt, the cost of state pensions and unfunded public sector pensions, together with increasing difficulties to access the housing market, imply that prospects for younger generations relative to older generations will probably deteriorate further going forward.

...adding to **intra-generational divide**. Not only has the share of youth unemployment risen but also the share of 'NEETS', a measure of youth inactivity from young people not in employment, education or training, as a percentage of the total number of young people in the corresponding age group. Young people who are NEETs are at risk of becoming socially excluded, with income below the poverty-line and without the skills to improve their economic situation (see **Exhibit 28**).

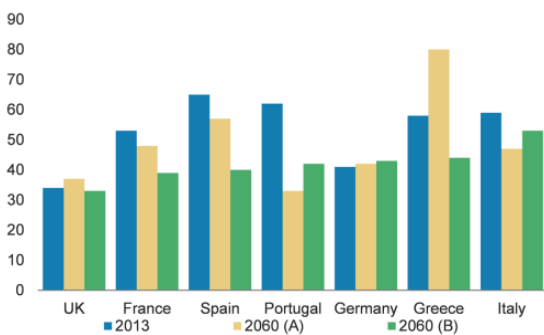
The debate about the struggle of the middle class has taken centre stage in the US, which spends less on its welfare system than the EU. At a conference on inequality hosted by the Federal Reserve Bank of Boston in the fall of 2014, Fed Chair Janet Yellen, addressed the challenges facing the middle class. She stated that "the distribution of income and wealth in the United States has been widening more or less steadily for several decades, to a greater extent than in most advanced countries... I think it is appropriate to ask whether this trend is compatible with values rooted in our nation's history, among them the high value Americans have traditionally placed on equality of opportunity."^[26] The Middle Class Task Force established by the US Obama administration is emblematic of the centre stage that this issue occupies on the US government's agenda and in the electoral campaign.^[27] The Task Force is a major initiative chaired by the US Vice President and involving a wide array of federal agencies, whose goal is to raise the living standards of middle-class, working families in America.

Exhibit 26: Lower EU Governments Spending in Health and Education



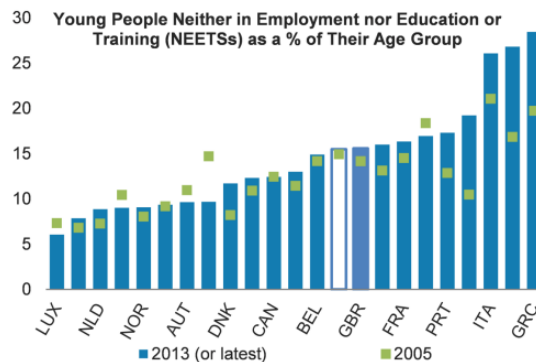
Programme countries are Spain, Portugal and Greece.
Source: Bruegel, National Sources, Morgan Stanley Research

Exhibit 27: Recent Pensions Reforms Will Exacerbate Future Intergenerational Divide...



2060 (A) are projections made in 2007, before the Great Recession; 2060 (B) are projections made in 2013.
Source: Bruegel, EU Commission, Morgan Stanley Research

Exhibit 28: ...as Well as Rising Young NEETs Losing the Skills to Improve Their Living Standards



Source: OECD, Morgans Stanley Research

Why are these dynamics important? Because the DM middle class is the group that appears to be suffering the most from increased job polarization. The 'skill-bias' in technological change has dramatically lowered demand for workers who carry out routine tasks, either cognitive or manual, such as middle-skill production and clerical occupations (see also 'Looking Ahead: What to Monitor?' later in the report). In contrast, non-routine high-skill cognitive jobs (such as consulting or financial services) and low-skill non-routine manual jobs (like retail and fast food) have been more in demand.

As a result, the DM middle class is splitting into upper and lower tiers, and, consequently, market segments are becoming increasingly bifurcated. The upper segment aspires to higher-quality products and

will pay a premium for them – for example, organic food and fine products. The lower segment targets 'the basics', for example 'own label products'. In addition, the same customer may opportunistically shift between the two segments, including young Millennials, who, confronted with relatively lower income and a strong appetite for technology, often resort to 'value' products (especially groceries) to make ends meet. Profit margins expand at the high-end of the market and are compressed at the bottom end.

This first effect of this bifurcation is that middle-market products are squeezed out. The analysis given by Morgan Stanley Equity Research analysts later in this report seems to support this conclusion. For example, the leisure, retail, healthcare, consumer staples and airlines sector are segmenting into high end and low end offers to their customer bases, moving away from the squeezed middle. In airlines specifically, for example, low cost carriers have been growing market share. The US domestic market has seen low cost carriers increase market share from ~21% in 2015 to ~31% in 2015. However, premium brands are also experiencing growth. Lufthansa, for example, has spent ~€300 mn in premium class upgrades in the past 3 to 4 years.

Overall, companies that show flexibility to take advantage of the market polarisation appear more likely to survive, our analysts' work suggests. However, to avoid systems which become sclerotic, it then becomes extremely important for companies to embrace complexity, in addition to innovation, implying using the best supply chains and best process and technology that are necessary for companies to be able to adapt to changing conditions quickly.

For now, internationally oriented companies are offsetting faltering DM middle-class demand with the rise of the middle class in developing countries. Indeed, according to World Bank definition of the middle class as people, (with incomes above PPP\$10 per day and less than PPP\$50 per day), in 1998 the middle class accounted for 17% of the world's population, compared to 29% in 2011. ^[28] And it is set to rise further to 3.2 billion by 2020 and 4.9 billion by 2030 (from 1.8 billion at the end of the last decade), with the bulk of growth coming from Asia which, by 2030, will represent 66% of the global middle-class population and 59% of middle-class consumption, compared to 28% and 23%, respectively in 2009. ^[29]

However, for more domestically oriented companies in DM, the boost that came to investment and growth from the middle class willingness to 'upscale lifestyles' is dwindling. In other words, keeping up with the Joneses' is no longer a focus for DM middle class consumers, who are healing from liquidity-asset poverty.

How Can Inequality Affect Economic Growth?

The relationship is complex and not clear cut: growth can create inequality, but inequality can also stimulate growth. For example, following the initial work of Kuznets in the mid-1950s, the hypothesis that a certain degree of inequality is inevitably associated with the early stages of new economic development of a country (as it undergoes industrialisation) has been widely accepted. The same could be valid now as richer countries transition from manufacturing-based to services-based economies (with increasing digitalisation). The hypothesis maintains that in the initial stages of development, investment opportunities increase for those who have the capital to invest and for the successful risk-taker innovators. Moreover, labor shifts from less-attractive to more-attractive sectors/regions (for example from rural to urban areas) keep wage growth low, widening income gaps. However, eventually, the benefits of rapid growth become more widespread, and inequality decreases.

At the same time, **market economies rely on price mechanism to allocate resources, and therefore inequality can act as an incentive** to specialise in the sectors that yield the highest return. Inequality can create incentives for entrepreneurship, open opportunities and stimulate investments. Importantly, it fuels innovation and could be a source for social mobility, if it works as a spur to take risks, to go into higher education, and more broadly, to work harder. So, in this respect it is positive for growth.

An ambiguous area is the effect on growth via the link between uneven income and wealth distribution and aggregate saving. One school of thought suggests that income inequality is associated with a higher level of savings, given a rising marginal propensity to save as income increases. According to this line of thinking, therefore, inequality is a key reason for lower investment and low growth, since the wage share in national income declines and, with it, scope for consumers to drive growth. However, in recent years, more empirical literature has emerged that does not support the idea that income inequality has any systematic effect on aggregate saving.^[30] Moreover, it can be argued that even if savings go up, more capital becomes available to finance investment and therefore the optimal mix between investment and consumption depends also on the value of worthy projects available to finance. How to steer to determine this mix depends also on policy options that are beyond the remit of this report.

Pernicious When Persistent

When inequality becomes entrenched and persistent though, it can lead to poorer economic performance, via several channels Since the Great Recession, a flurry of literature, including from the IMF and the OECD, has highlighted the negative consequences that rising and persistent inequality could have on economic growth. The wide resonance of Thomas Piketty's 'Capital in the Twenty-First Century' (arguing in a nutshell that in an economy where the rate of return on capital outstrips the rate of growth, wealth will always grow faster than income) is symptomatic of the sensitivity of the subject but the ensuing debate (among economists and in the media) is also indicative of the fact that the trade-off between inequality and economic growth is not clear cut.

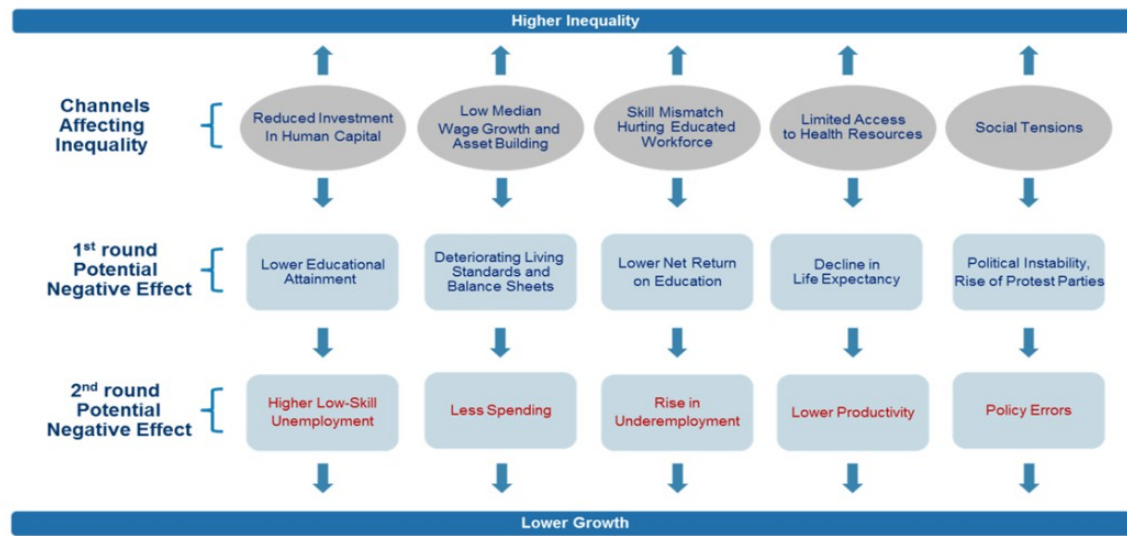
Quantifying its economic impact is difficult though. For example, **the OECD estimates that income inequality has knocked 4.7 percentage points off cumulative economic growth between 1990-2010 in developed countries.**^[31] Rising inequality is estimated to have reduced growth by more than 10 pp in New Zealand and Mexico, 9 points in the UK, Finland and Norway and between 6-7 points in the US, Italy and Sweden. However, **these are simulations and, as such, their magnitude needs to be interpreted with care**, as cautioned recently by the German Council of Economic Experts.^[32]

Working Through Various Channels

Persistent inequality can affect economic growth negatively through various channels, due to the complexity and multi-dimensionality of its drivers. Exhibit 29 exemplifies a few of these channels, which

we will explore in the rest of the note.

Exhibit 29: Examples of Channels Through Which Inequality Might Affect Economic Growth Negatively



Source: Morgan Stanley Research

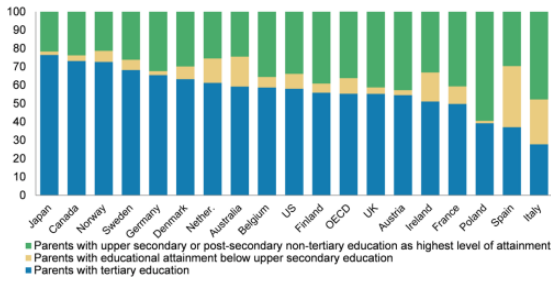
Reduced Investment in Human Capital

The main channel is a reduction in investment, especially in human capital. Inequality can hamper skills developments among individuals who come from a low-income parental background both in terms of level of education attained (for examples, years of education) and of its quality (i.e. skill proficiency).^[33] The gap in achievement measured by standardised test scores between students from low-income and high-income background is well documented.^[34] Similarly, there is plenty of research and evidence documenting that educational attainment is heavily dependent on parents' education (**Exhibit 30**) .^[35] The divide can start in the early years, because children may miss out on early childhood education deemed crucial to counter the hindrances that come with being born into disadvantaged households.^[36]

Different school attainments affect skills... School performance could be affected not just by the low-income parental background but also by segregation (i.e. if children from socioeconomically disadvantaged households will mix with other disadvantaged children, facing reduced peer pressure to do well).^[37] Recently, neuroscientists even found a link between brain anatomy, academic achievement and family income.^[38]

...and life expectancy. Better educated people experience comparatively lower unemployment rates and tend to live longer (see **Exhibit 32** and **Exhibit 32**) By bringing improved socioeconomic conditions in which people live and work, higher education promotes the adoption of healthier lifestyles, improves awareness and facilitates access to appropriate health care. By the age of 30, educated men with a university degree (tertiary education) in the OECD area can expect to live from four to 18 years longer than primary-educated individuals, depending on the country. The gap is smaller for women (4 years on average), and the country discrepancies are also smaller. The narrower gender gap is explained by lower risk factors, such as smoking and alcohol use.^[39]

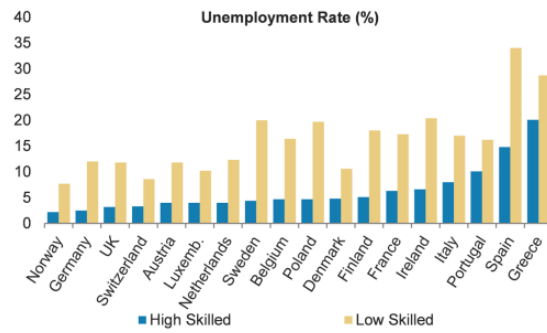
Exhibit 30: Parents' Background Matters For Educational Attainment



The data show the pct. of 20-34 year-old in tertiary education by parents' educational attainment. 2012 data.

Source: OECD, Morgan Stanley Research

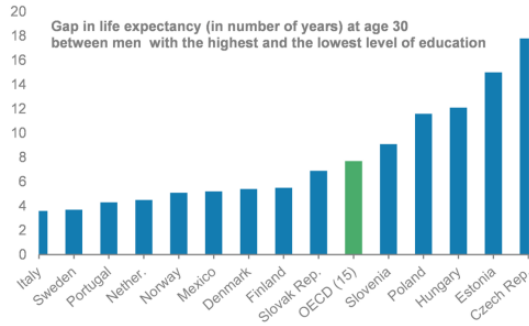
Exhibit 31: Large Gaps Between High-Skilled and Low-Skilled Unemployment Rates



Data are for 2013 or latest available

Source: OECD, Morgans Stanley Research

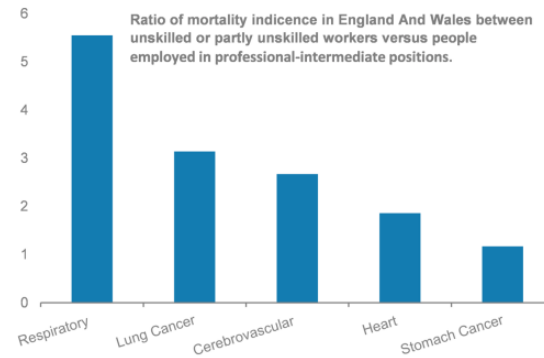
Exhibit 32: Life Expectancy of Men with Higher Education Longer



Data are for 2012

Source: OECD, Morgan Stanley Research

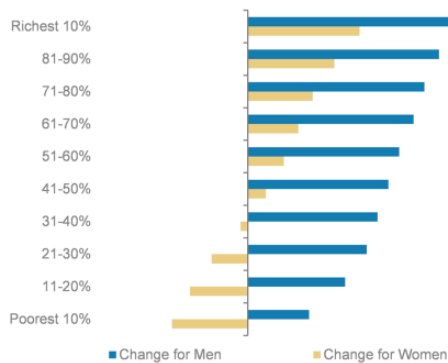
Exhibit 33: Higher Mortality Rates for Unskilled Workers (by Type of Disease)



The ratios are based on age-standardized data.

Source: ONS, Morgan Stanley Research

Exhibit 34: Top Income Earners Can Expect to Live Longer Than Bottom Ones

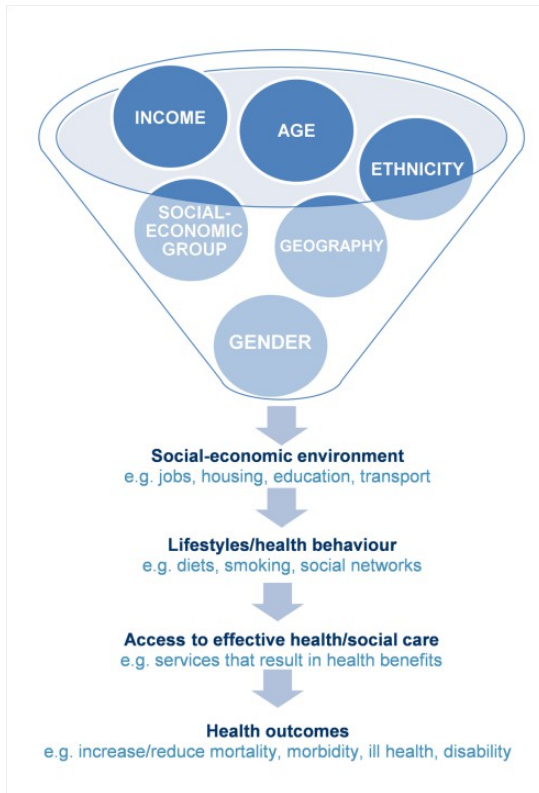


Change in average additional life expectancy (in years) at age 55 in cohorts born in 1920 and in 1940. Percentiles by income.

Source: Barry Bosworth, Brookings Institute, Morgan Stanley Research

Lower Life Expectancy and Poorer Health

Exhibit 35: The Health Inequality Spectrum



Source: Morgan Stanley Research based on Public Health England

Poorer health of low-income individuals could also reduce productivity...Low-income earners, around the world, have the worst health (see [Exhibit 33](#) and [Exhibit 34](#)). Within countries, the evidence shows that in general the lower an individual’s socioeconomic position, the worse their health. There is a social gradient in health that runs from top to bottom of the socioeconomic spectrum. ^[40] There is vast economic evidence suggesting that life expectancy and mortality rates are higher/lower for poorer people. HIV prevalence, and risk factors such as obesity and tobacco use, are also greater (see [Exhibit 35](#)). The most common large inequality between high and low income groups is perhaps unmet dental care needs, which could have side effects in other parts of the body, including diabetes and heart diseases. ^[41]

...via increased mortality, lost productivity at work and reducing the workforce (see [‘Sustainable Economics: The Bitter Aftertaste of Sugar’ March 18, 2015](#)). For example, in the US, at the age of 55, all men who were born in 1940 can expect to live longer than those who were born in 1920. However, the top 10% by income who were born in 1940 can expect to live even longer (by about 4 years) than the bottom 10%. For women, the results are even starker because whilst the top 50% can expect to live longer than the women who

were born in 1920, life expectancy for the bottom 50% has decreased, with the largest contraction for the bottom 10% as large as 2 years.

Rising Student Debt Shrinking the Net Return on Education?

But there are also negative consequences for those with higher educational attainment... The number of students who complete tertiary education (university graduates) who cannot find a job at all or not one commensurate to their skills is increasing in DM. In the OECD, 40% of 23-34 years old have a tertiary educational attainment compared with only 26% in 2000 (and well above the 25% of 55-64 years old). And yet their employment rate dropped from 85% in 2000 to 82% in 2013, a contraction exacerbated by the Great Recession, which is expected to have long-lasting impact on the students who graduated at that time. Indeed, the effect from adverse labor market conditions are larger and can be persistent for individuals in the first year of their careers compared to those with a few years of experience. ^[42]

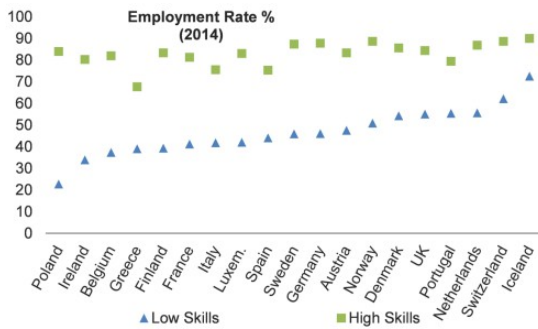
Indeed, there is evidence that ‘unlucky’ graduates who end their education career during adverse macroeconomic conditions suffer persistent earnings declines, because they start working, if at all, for lower paying employers before progressing through a gradual process of mobility towards better higher-paying firms. ^[43].

Graduates face considerable more uncertainty about the ‘net’ return for their education because of increasing debt at graduation. Spending on higher education is increasing: across the OECD it rose from 1.3% of GDP in 2000 to 1.6% in 2013. And the American model, where the private sector provides a large part of the education and individuals pay for most of their tuition, is spreading among rich countries. As a result, in

several OECD members, most students are in debt at graduation: the highest proportion is in the US (see US Economics: **Inequality and Consumption**, September 22, 2014) where two out of three graduates have a debt loan of an average \$25,400, or 46.5% of GDP per capita (and where total student debt reached \$1.1 trillion in 2013). In contrast, in Turkey one in five students at graduation has an average debt of \$5,200 (26.5% of GDP per capita). Even in countries that do not charge tuition fees, student debt levels can be high (as in the case of Sweden with an average \$20,000 and Norway with \$25,000, ~45% and ~38% of GDP pc, respectively) because of elevated living expenses. In Nordic countries, income is also generally lower and taxes higher than in countries with high tuition fees.

The Rise of Underemployment

Exhibit 36: Employment Rates For Low Skilled Workers Vary Considerably by Country



Source: OECD, Morgan Stanley Research

The mismatch in labor skills has important implications for the structure of the labor market.

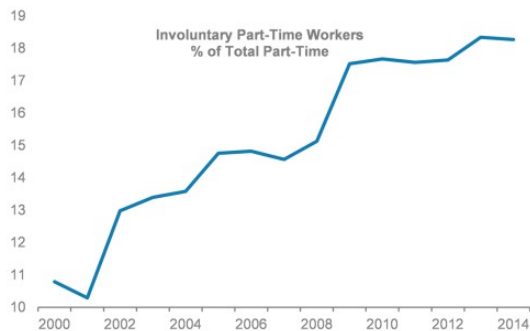
To start with, lower skill acquisition by low-income people creates an imbalance with skill demand resulting in comparatively higher unemployment and lower employment rates. In the OECD, the level of unemployment of people with low education attainment (below upper secondary education) is 13.7%, compared with 8.7% for those with 'upper or post-secondary educations' and 5.3% for those with tertiary level, implying that people with low education attainment are almost 3 times more likely to be unemployed than those with higher education levels.

Exhibit 36 shows that employment rates of people with higher education attainments are similar, yet there is

considerable difference across countries in employment rates of low-education attainers.

Moreover, it leads to underemployment, via involuntary part-time work or underutilization of skills, or a reduction of the labor force (because of a rise of 'discouraged workers' who stop seeking for a job) and a subsequent underuse of economic capacity, and potential growth (see **Exhibit 37** and **Exhibit 38**). Eurostat estimates that in the EU28, in addition to an unemployment rate of 9.5%, 4.2% of the labor force is underemployed, 3.7% is available but not seeking work and another 1% is seeking work but not immediately available. That's a total of an extra ~9% of the labor force. In the US, in addition to the 5.0% of the population that is unemployed, we estimate an additional 4.8% of the population belongs to the "shadow labor" or underemployed population. [44] The problem is even more pressing when looking at the youth who are neither in education or employment (NEET) whose share in the OECD has risen from 17.5% in 2005 to 18.2% in 2013.

Exhibit 37: Involuntary Part Time Rising Even Before the Great Recession...



Source: OECD, Morgan Stanley Research

Exhibit 38: ...with the Largest Gains (and Levels) in South European Countries



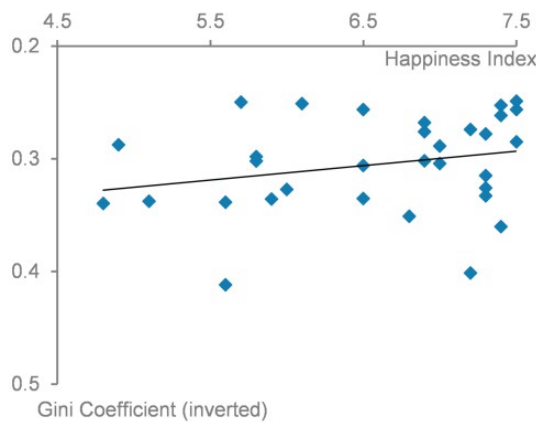
Source: OECD, Morgans Stanley Research

Credit Over Expansion

Finally, greater income inequality resulting from credit overexpansion can hit economic activity. Of all the credit channels to the private sector, according to the OECD it is household credit that potentially has the largest dampening impact on economic growth (see [How to restore a healthy financial sector that supports long-lasting, inclusive growth?](#), OECD). Indeed, an increase in private credit or stock market capitalization by 10% of GDP in a sample of OECD countries could reduce real GDP growth per capita by more than 0.5%.

Consequences beyond GDP

Exhibit 39: Lower Inequality Measures Pointing to Somewhat More 'Happiness'



The Gini coefficient varies between 0 (perfect equality) and 1 (perfect inequality). MS calculations based on 32 OECD countries. Source: OECD, Morgan Stanley Research

The negative impact of inequality could be even broader if we also include relational and subjective well-being in the definition of prosperity. The 'beyond GDP' initiative officially launched by Eurostat in 2007, to foster the developing of indicators which are more inclusive of environmental and social aspects of progress, added impetus to work in this area, complementing the World Bank's Human Development Index (HDI) and Gross National Happiness Index (NHI) and the OECD's Better Life Index, to name a few. Indeed, this year's Nobel Laureate Angus Deaton has shown that there is a positive correlation between economic prosperity (still measured by GDP per capita) and life satisfaction. Research has also shown that the correlation is not high just across countries but also within countries. We also find that the OECD happiness indices rise when income inequality (measured by the Gini coefficients) drops (see [Exhibit 39](#)).

The role of perception

Perceived inequality may differ from actual inequality. Values and norms differ not only across countries but also within a society. For example, in some countries where statistics indicate that inequality is high (such as in the US), surveys show that respondents have generally felt inequality is not too bad, at least until recently, and that there is plenty of opportunity. In contrast, in other countries (such as France) respondents feel that inequality is extensive, even if statistics indicate the opposite.^[45]

In general, surveys indicate that people in Europe tend to underestimate the proportion of middle-income earners and to overestimate the proportion of low-income earners. Indeed, econometric evidence suggests that inequality perception on a personal level is driven more by political attitudes and 'subjective' evaluation of the personal situation of the respondents, than by 'objective' socio-economic factors related to education and the labor market, for example.^[46] Within the EU, the share of people most dissatisfied with the overall level of inequality is over 70% in Latvia, Hungary, Slovenia, Estonia, Bulgaria, Greece and Latvia; in contrast, it is below 40% in Denmark, Netherlands, Austria, Italy and Malta (Eurobarometer).

Voters Giving up Loyalty for 'Voice' or 'Exit'

The link between actual and perceived inequality is crucial in understanding voting behaviour. If the perceived level of inequalities exceed levels of tolerance, there are several channels through which economic growth can be harmed:^[47]

1) rent-seeking or illegal activities (the latter could still add to GDP growth but would be accompanied by an

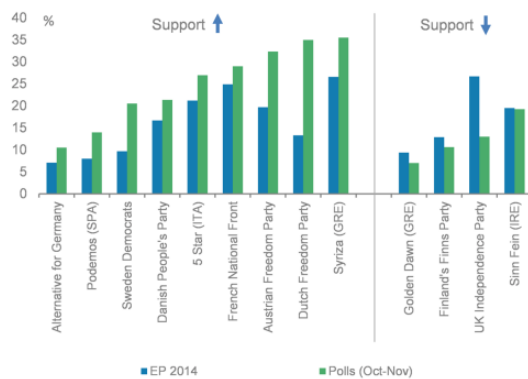
increase in crime). In turn, these activities can threaten property rights, thus hindering investment and growth;

2) policy errors, ranging from higher taxation which reduces the rate of accumulation/investment of capital and therefore growth, to increased market regulation and protectionism (via the erection of trade barriers), which could hinder globalization)

3) voters' apathy could increase, meaning loss of trust in the institutions and the risk that the vote of a few could decide for large numbers. Indeed, voter turnout has declined in around two-thirds of OECD countries, compared to 2007 levels; ^[48] moreover, support for anti-establishment party alternatives could rise (see [European Economics: Politics and its Discontents, July 20, 2015](#)).

4) finally, radical demand for policy changes could rapidly lead to violence and illegal seizures of power, which hinders investment opportunities.

Exhibit 40: Fringe Parties Benefit from Rising Inequalities



Source: Various national sources, Morgan Stanley Research

In Europe, the political risk premium is on the rise again (see [European Economic: Politics and its Discontents, July 20, 2015](#)). The escalation of the Greek crisis during the summer, and its handling by the Syriza government, has taken some steam temporarily off protest parties elsewhere in Europe compared to early 2015. However, the upsurge of the migration crisis might rekindle support for anti-establishment parties to the left and to the right, which promise to give a voice and representation to calls for less globalization, less migration, more protection of national jobs.

In the US, the issues of class, race and immigration are expected to play a major role in the dialogue leading up to the election of a new President next year. Such issues already have captured a growing share of the national consciousness, and the Republican

and Democratic political parties are split along expected lines. The financial crisis sparked several protests in major cities across the country and in 2011, conflicts between rich and poor ranked ahead of the three other potential sources of group tension: immigration, race or age, according to Pew Research Center.

However, over the past year, a growing number of Americans view racism as a big problem in society and several groups have staged demonstrations in various cities, as well as on college campuses. According to Pew, 59% of Americans say the country needs to continue making changes to achieve racial equality while 32% say the country has made the changes needed. A year ago, public opinion was much more divided on the question with 49% stating that changes were needed and 46% satisfied with the status quo. Public attitudes towards immigrants have been growing more positive since the mid-1990s according to Pew Research Center, though recent terror attacks abroad and the migration crisis have raised caution.

In the meantime, according to a Gallup survey, at the end of last year, support for the independent parties (43%) was at a record high and exceeded that for the Republicans (26%) and the Democrats (30%).

Looking Ahead: What to Monitor

Detecting the tipping points beyond which inequality becomes disruptive is difficult, because the drivers of inequality are complex and interlaced. [49] [50] [51] [52] The unrest which accompanied the worsening of the Greek debt crisis and the political crisis in Portugal, where it is proving difficult to form a government, seem symptomatic of long-standing economic problems that have accumulated over time, including high unemployment and worsening living standards.

Following labor market developments is important in order to take the pulse of wage and unemployment dynamics, especially paying attention to secondary statistics, like the level of underemployment and 'unintended' part time, that tend to attract less market attention than the headline figures.

Three long-term challenges we believe deserve attention are:

- **outsourcing**
- **migration**
- **technological progress**

While these represent **opportunities** for growth, they also have the potential of being **destabilizers** for markets, if they either contribute to or are perceived as contributing to widening economic inequalities.

Challenge 1: Outsourcing

The rise of the shared economy, increasingly referred to as 'the Uberisation of the economy', has added a new dimension to outsourcing (see **Exhibit 42**). [53] 'Uberisation' effectively describes outsourcing that has been enhanced by the use of technology. Historically, the main point of contention with outsourcing has been the creation of low-paid jobs, especially in manufacturing and via offshoring, particularly the contracting of cheap labor from developing countries. Recently, the rise of the peer-to-peer economy also has introduced the possibility to outsource services domestically, using platforms of freelancers. With the help of technology, the shift towards 'atypical' contracts has therefore reached a new level.

Uberisation is bringing about major changes to traditional models of employment. By facilitating the matching of labour demand-supply, Uberisation could conceivably help ease labor market rigidities, **with additional benefits.** For example, it would reduce prices (and possibly even improve quality) and it could help bridge the gap between the skill demand-supply, with remarkable socio-economic advantages, by stimulating a more productive and engaged workforce. It could also reduce unemployment and underemployment and increase accountability (because of customer feedback). Finally, it could boost competition among the 'old players' in the sector to protect market share.

The phenomenon is not limited to lower-skill jobs. In the US, the Upwork platform comprises 2.5 million

Exhibit 41: The peer-to-peer economy has added a new dimension to outsourcing



Source: www.Shutterstock.com

freelancers who offer professional services (such as legal, consulting, web designing). According to a study by the Freelancers Union, US freelancers are about 53 millions (i.e. one in three active workers, and this ratio could rise to one in two by 2020).

But an increasing shift from salaried to self-employed jobs can also be a source of tensions, as it introduces a new level of uncertainty for the workforce, which, in turn, becomes less protected, more precarious and with more difficulty in accessing to credit. Indeed, freelancers frequently lament long delays in collecting payments. Workers would also lack ongoing training and continuing professional development. So, in this respect, uberisation could exacerbate inequalities.

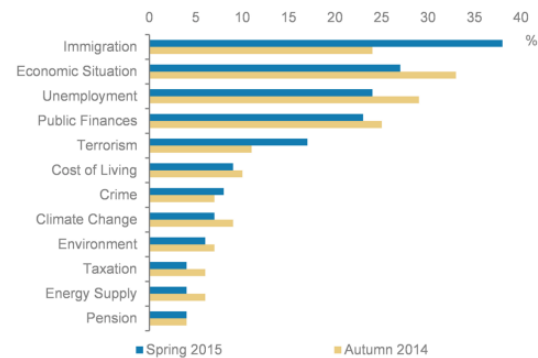
Challenge 2: Migration

The escalation of the refugee crisis in Europe has brought the issue of migration to the attention of policymakers and the general public in a dramatic fashion. Asylum seekers fleeing from war-torn countries are fewer than 'economic migrants' who seek jobs and better lives. Yet, the crisis has evolved so quickly that European leaders have been struggling to deal with it. German Finance Minister Schaulbe recently compared migration to a 'rendezvous with globalisation' or an 'avalanche', calling for co-ordinated action at the European level. Indeed, according to the latest Eurobarometer, it currently tops public opinion ranking of the main economic challenges facing the EU, up from fourth in the autumn of 2014 ([Exhibit 42](#)).

From a long-term perspective, migration is a positive in ageing DM countries on many fronts.

The old age dependency ratio, which measures the share of 65+ (currently defining old age) over those between 15-64 (working age) will rise rapidly in many European countries (especially Germany and Italy) and also in the U.S. over the next 20 years, with further increases thereafter. Even allowing for the fact that the trend may not be steep, because retirement ages are increasing and old-age health is improving, migration would still be needed to help mitigate this surge: it would help meet labor demand (including services to elderly people); fill in skill gaps; boost activity levels; and bring innovation and cultural diversity.

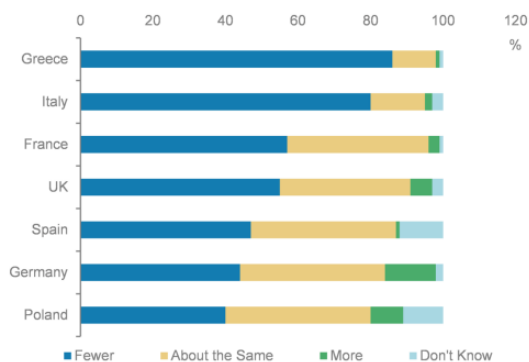
Exhibit 42: Immigration Tops the Public Opinion's Ranking of the Main EU Challenges



Responses to the question 'What do you think are the two most important issues facing the EU at the moment?'

Source: Eurobarometer, Morgan Stanley Research

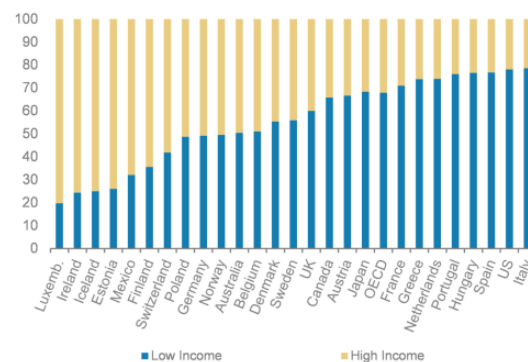
Exhibit 43: Little Desire for Increased Immigration Even Before the Escalation of the EU Crisis



Responses to the question "Should your country allow more, fewer or about the same immigrants?'

Source: Pew Research Institute

Exhibit 44: Protest Parties Rising Where Share of Low-Income Countries' Migrants Is High



The data are for 2010-2011 and are percentages.

Source: OECD, Morgan Stanley Research

Integration is key for long-term benefits but could also boost inequality. Migration impacts both those who move in search of better life and job prospects and native populations. If integration proves difficult, there may be friction between migrants and local people. Moreover, attitudes toward migrants could turn negative if migration inflows put pressures on 'shared' public services (like education or health for example). Migrants could be exploited or can depress wages if they are willing to work for relatively low pay, and they can boost unemployment numbers before they settle in and acquire the skills to be employable. Finally, ease of movement may facilitate organised crime and people trafficking.

Negative public attitudes towards migration could fuel sentiment for populist, fringe parties. As we noted earlier, in both the US and in Europe, anti-establishment political forces promise voice and representation to voters' fears over cultural identities, national jobs and domestic security. Protest parties gained traction, even before the escalation of the migrant crisis in the EU, in countries (like Greece, Spain, Italy, France and the US) that have a relatively higher share of immigrants from low-income countries (see [Exhibit 43 Exhibit 43 Exhibit 44 Exhibit 44 Exhibit 44](#)). Moreover, support for German Chancellor Angel Merkel's CDU party slipped to 35% in early November, close to the lowest level since the height of the euro crisis in 2012, following Chancellor's Merkel 's announcement in early September that Germany would not place a limit on the number of Syrian asylum-seekers it would accept.

Challenge 3: Technology

The 'skill bias' attribute has propelled technological change at the center of the income-distribution debate. ^[54] In practice, over the past 30 years, the relative price of skilled labor, especially in information and communication (ICT) technologies and problem solving (PS), has increased significantly relative to that of unskilled labor, even if the relative supply of college skills tripled over the same period (see [Exhibit 45](#)). A rapid diffusion of ICT in the work place and a cheapening of the equipment capital are among the tenets that have been brought forward to explain this bias.

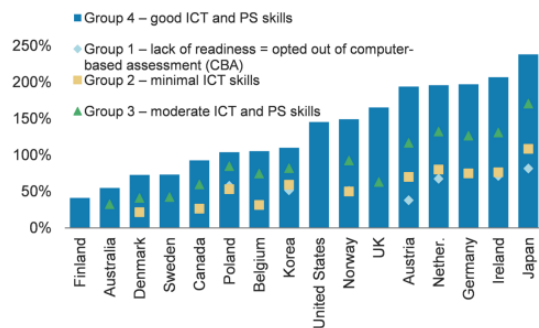
Technology has transformed the organization of production, polarizing the labor market due to outsourcing, offshoring and automation, with increasingly rapid demand for high-skilled knowledge workers (for example, software developers) and low-skilled services where jobs are difficult to automate (for example, home health care workers). In contrast, mid-skilled workers with jobs easily automated (such as data analysis, for example) continue to be penalized, amidst the advances of digitalization (see Morgan Stanley: China - Robotics, Automation for the People, December 5, 2012).

But technology has also relieved workers from menial tasks and heavy duty jobs, creating more free time for entertainment. This does not mean that countries which are more technologically advanced are necessarily more equal. Indeed, countries with similar level of inequality can have different levels of technological advancement and vice versa.

However, there are no compelling reasons to expect that technological change will always be skill-biased. ^[55] Indeed, with job opportunities arising in new sectors, the labor force adapts and acquires new skill sets over time. Moreover, if replacing skilled workers becomes more profitable, new technologies may attempt to replace them. For example, medical diagnosis might be done by artificial online devices, or online education could make education cheaper. Furthermore, as digital products become more use friendly, they may increase the returns to the low-skill users, via increasing accessibility to services and opportunities.

We are in the middle of a transition phase though and in the meantime inequality may continue to

Exhibit 45: The Wage Skill Bias



Difference in salary (%) compared to the group 0 (no use, no skills) adjusted for education and wage (25-64 year-olds). Data point which are not statistically significant are not shown.
Source: OECD, Morgan Stanley Research

increase in the short run. Therefore, even leaving aside the debate about the need for and appropriateness of government redistributive policies, which is beyond the remit of this note, the pace at which entry barriers to the labor market are eased, participation rates are boosted and education enhanced - even to prevent a depreciation of human capital among those who already have higher skills - will prove crucial for the future of inequality.

Autos: Ripe for disruption, improving equality

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Bottom Line

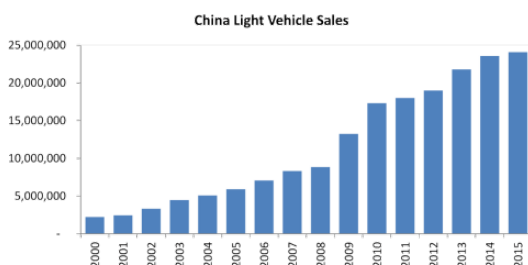
Auto companies today make expensive machines that are in operation for 3.5% of the time and are accessible to only small slivers of the global population, particularly outside of the developed markets. We see technological disruption in the auto industry as poised to improve equality along many lines, including access, affordability and safety.

Autos and Inequality: Shared autonomous cars democratize taxis to the masses and improve access, affordability, safety and sustainability. Today's automotive business model has not changed materially in more than 100 years. Companies make expensive machines that are sold to a privileged portion of the world's population. These machines consume finite resources, are only in operation for 3.5% of a 24 hour day and are one of the leading causes of death and injury globally across populations.

There are roughly 1 billion cars and 7.2 billion people on Earth, for a global penetration rate of roughly 14%. Excluding the United States and Europe, vehicle ownership is even more scarce with a penetration of just over 7%. To the extent that the automobile provides people with the freedom of personal mobility, this business is still only accessible to only small slivers of the global population, particularly outside of the developed markets. From this perspective, we argue the starting point of today's auto industry is one of extreme inequality.

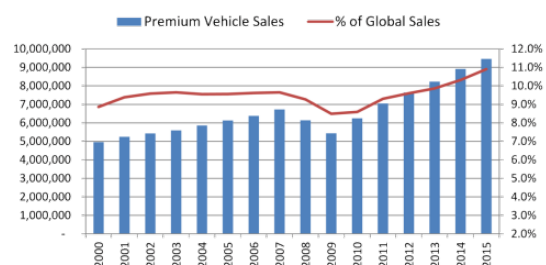
For the 14% of the population that does own a vehicle, the privilege comes at a rather high cost of \$1 per mile (excluding time and infrastructure). This is the result of extremely low utilization rates as cars are only in operation for an average of roughly 1 hour per day. So we have a global invested capital base of around \$20 trillion (1 billion cars x \$20k cars/unit) only used 3.5% of the time, implying that in an average day around \$19.2 trillion of invested capital goes unused. In our opinion, this is an economic problem that could be improved substantially (by order of magnitude) through the application of autonomous car and connected car technology. Transforming today's car park into a shared autonomous fleet could, according to our calculations, reduce the per-mile cost of vehicular mobility to levels as low as 50 cents/mile, with potential to approach \$25 or 30 cents/mile when large portions of vehicle miles travelled can be broken down into seat-miles (higher passenger occupancy per vehicle mile travelled).

Exhibit 46: China Light Vehicle Sales



Source: IHS, Morgan Stanley Research

Exhibit 47: Global Premium Vehicle Sales



Source: IHS, Morgan Stanley Research. Note: Premium includes exotic, luxury, specialist, super luxury

In today's model of privately owned, human-driven vehicles, the trends of supply, demand and corporate

profitability have followed two main themes: (1) secular growth of penetration of high-end premium brands in the market; and (2) explosive growth of vehicle penetration in China, taking annual sales in this market from roughly 1 million units (2% of global demand) to 25 million units (nearly 30% of global demand) in the past 15 years.

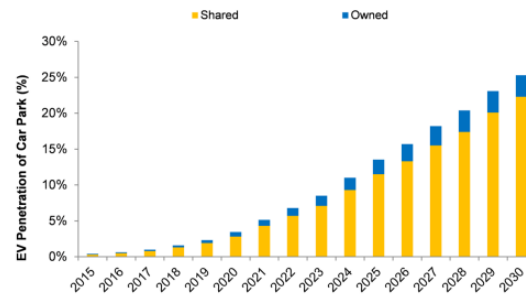
As we contemplate technological disruption to the traditional business model, we see room for improving equality in the auto industry along many lines, including access, affordability and safety.

Let's look further into these trends.

Improving access to vehicular mobility for greater portions of the population: Currently, the world's 1 billion car fleet drives an average of 10k miles/year for a total of 10 trillion miles annually at a cost of around \$1/mile (\$10 trillion in aggregate). In a future of shared mobility, we see the potential for half the number of cars to drive 60k miles/year for 30 trillion miles at under 50 cents/mile. That's a 6x improvement in utilization, 3x the miles travelled and a 50% reduction in the cost/mile. On our forecasts, by 2030 we estimate quite a bit of progress can be made in this direction with 55% of total miles travelled being shared miles.

While we expect the number of cars on the road would be in secular decline, a transformation of the industry to a professionally managed, highly utilized and highly regulated network would require shorter, more frequent replacement cycles, resulting in annual production volumes that are not too dissimilar to today's annual production which will soon approach 100 million units annually. In short, we are not convinced that greater sharing and utilization of assets necessarily means substantially lower annual light vehicle production and lower employment levels in the manufacturing of the machines and the maintenance of the global mega-fleet.

Exhibit 48: Global Vehicle Miles Traveled - Shared vs. Owned



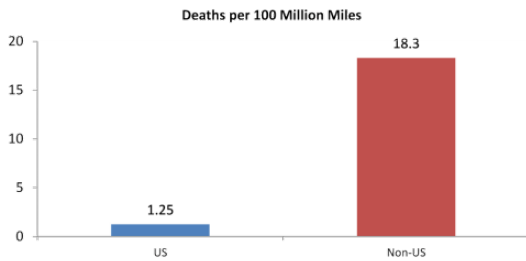
Source: Morgan Stanley Research

From private transport for the privileged few to public transport for the masses. At a fundamental level, we foresee a nearly complete metamorphosis of today's automobile industry from one of exclusivity, privilege, inefficiency and hazardousness involving mostly private transportation to a vastly more accessible mass transit ecosystem - a shared and far more affordable global fleet. **We estimate the average cost per mile of global light vehicle travel today stands at nearly \$1/mile globally (\$0.76/mile in the US according to the AAA). With improved utilization of cars from 3.5% (of a 24/hour day) today to 20 or even 25% by 2030, we estimate the cost per mile to the consumer could be as little as \$0.25/mile.** This estimate is consistent with studies we have seen from the University of Michigan and the US Department of Transportation at a conference we recently participated in hosted by the Urban Dynamics Institute (UDI) at the Oak Ridge National Laboratory (ORNL).

Enhanced Computer driving could lead to vastly improved accident rates on roads, saving lives. Each day closer to fully autonomous driving is worth approximately 3,000 lives, according to the World Health Organization. Eliminating human error alone could improve accident rates by 90%, the National Highway Transportation Safety Administration suggests. Further improvements in connected car swarms could potentially result in near accident free driving. There are many statistics about the unfortunate incidence of automobile accidents to passengers and pedestrians. The numbers from the various regulatory agencies like the FHA and the World Health Organization are disturbing. Through the first half of 2015, the United States is on pace to achieve a full year total of 40,000 deaths in motor vehicle accidents, or 1.25 deaths per 100 million vehicle miles travelled (VMT) or 12.5 deaths per 100,000 population. Additionally, the US sees 2.3 million serious injuries annually including nearly 300,000 incapacitating injuries annually (FHA). Nearly 1 out of 1,000 Americans suffer an incapacitating injury in an automobile accident each year. Globally, the statistics are grimmer - by order of magnitude - with approximately 1.3 million traffic deaths globally, or more than 3,500 deaths per day. Outside of the United States, there are 18.3 traffic deaths per 100 million miles travelled, a rate nearly 15x higher than inside the US. Technology that exists today could greatly improve these statistics.

Shared autonomous electric vehicles improve natural resource sustainability with secondary benefits to equality over time. Shared cars overcome the greatest disadvantage of today’s electric cars – inferior economic payback. Mobile technology and relatively simple software increases driving utilization rates by an order of magnitude bring taxis and chauffeur services to the masses. This transforms the auto business model from B2C ownership to B2B shared. Enabling each car to drive a far greater number of miles per year helps amortize the up-front cost of a battery far more rapidly, shrinking the payback. Greater numbers of EVs enable OEMs and contract manufacturers to achieve unprecedented scale economies in battery pack production, yielding further benefits.

Exhibit 49: Deaths Per Mile - US vs. Non US



Source: World Health Organization, Morgan Stanley Research

To take the point of vehicle utilization vs. EV payback rates to the extreme, imagine that the owner of a 50KWh battery car used the vehicle for the very rare Sunday drive of 100 miles/year... the extra premium paid for the car vs. owning a 40mpg car at \$3/gallon gasoline would take 2,778 years to pay off. To break-even vs. an internal combustion engine, such a vehicle would have to be purchased in the 8th Century BC, at the founding of Rome or during Homer’s epics (ignoring inflation). If the same car were used 1,000 miles/year, the breakeven payoff would be 278 years, or purchased when George Washington was a 5-year-old lad rambling around the fields in the Colony of Virginia.

On the flipside, if the EV were operated 100,000 miles/year, the payback would be 2.8 years. To achieve the same 2.8 year payback by only shrinking the battery cost (holding miles driven flat at 10,000/year) would require \$25/KWh... a 90% reduction from Tesla’s current claimed level of cost achievement. \$25/KWh would require technological breakthrough, while 100k miles/year just requires a smarter use of technology that already exists.

Eliminating the human from the driving equation could further improve utilization to even higher levels and efficiency and lower cost per mile. By far the largest cost of today’s ride sharing service is the person behind the wheel. Replace the driver with a few million lines of code and some commoditized sensors, and the savings could really begin. Shared autonomous fleets address many other problems with today’s EV model, such as slower charging time, lower charging station density and range limitations. Out of a total autonomous taxi fleet of say 10,000 vehicles, perhaps 10% or 20% would be involved in some portion of the charging process. Please note, we are not considering any material differences in maintenance/repair costs between an EV and an ICE vehicle.

Exhibit 50: EV Payback in years – based on gas prices and fuel efficiency

Payback (years) at various battery cost vs gas price at 40.0 mpg of ICE							
		BATTERY COST (\$/KWH)					
GAS PRICE (\$/GAL)		600	500	400	300	200	100
1.5		400	333.3	266.7	200	133.3	66.7
2		150	125	100	75	50	25
2.5		92.3	76.9	61.5	33.3	30.8	15.4
3		66.7	55.6	44.4	26.1	22.2	11.1
3.5		52.2	43.5	34.8	21.4	17.4	8.7
4		42.9	35.7	28.6	18.2	14.3	7.1
4.5		36.4	30.3	24.2	18.2	12.1	6.1
5		31.6	26.3	21.1	15.8	10.5	5.3
5.5		27.9	23.3	18.6	14	9.3	4.7
6		25	20.8	16.7	12.5	8.3	4.2
6.5		22.6	18.9	15.1	11.3	7.5	3.8
7		20.7	17.2	13.8	10.3	6.9	3.4
7.5		19	15.9	12.7	9.5	6.3	3.2
8		17.6	14.7	11.8	8.8	5.9	2.9

Payback (years) at various battery cost vs mpg of ICE at price at \$3.00 gas price							
		BATTERY COST (\$/KWH)					
ICE EFFICIENCY (MPG)		600	500	400	300	200	100
65		185.7	154.8	123.8	92.9	61.9	31
60		150	125	100	75	50	25
55		122.2	101.9	81.5	61.1	40.7	20.4
50		100	83.3	66.7	50	33.3	16.7
45		81.8	68.2	54.5	40.9	27.3	13.6
40		66.7	55.6	44.4	33.3	22.2	11.1
35		53.8	44.9	35.9	26.9	17.9	9
30		42.9	35.7	28.6	21.4	14.3	7.1
25		33.3	27.8	22.2	16.7	11.1	5.6
20		25	20.8	16.7	12.5	8.3	4.2
15		17.6	14.7	11.8	8.8	5.9	2.9
10		11.1	9.3	7.4	5.6	3.7	1.9
5		5.3	4.4	3.5	2.6	1.8	0.9

Source: Morgan Stanley Research

Consumer Staples: Bifurcation into low-end and high-end consumers

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EU Food

Bottom Line

In EU Food, growing income inequality seems most likely to manifest itself in terms of growth polarisation, i.e. faster growth at both the premium (incorporating better-for-you / indulgent products) and value ends of the market, with the middle range more squeezed. Whilst all three large-cap EU Food manufacturers have strategies in place to address this dynamic, the company we believe to be best-positioned to navigate growing income inequality is Nestle, given its successful track record of innovation in driving a dual focus on both premiumisation (e.g. Nespresso) and value (e.g. its 'PPP' products). Unilever, previously mass-market focused, is increasingly pursuing premiumisation, while Danone, which has been successful at premiumisation, may need to improve innovation to drive 'added-value' and address the price point imbalance in its portfolio, to navigate the widening inequality gap.

Most Favourably Positioned: Nestle

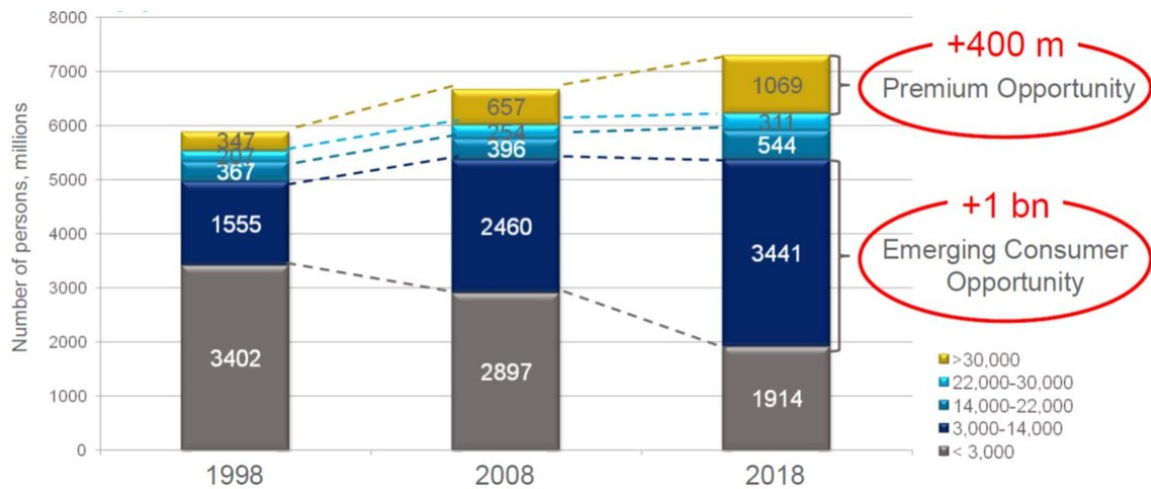
Stronger growth in the number of both higher-income and lower-income consumers globally, combined with a rise in more value-conscious consumers in developed markets, should drive greater market polarization in the European Food space, in our view. Nestle arguably has had the most success in addressing the consumer polarization trend (i.e. growth in demand at the premium and value end of the market, with the middle segment being squeezed). For example, it has achieved positive organic top-line and volume growth in developed markets throughout the recession via a strategy that combines: (i) premiumisation (i.e. increasing the range of 'affordable luxury' or 'added-value' products that are sold at higher price points, in order to improve sales mix – examples include Nespresso and Dolce Gusto in the single-serve coffee space, and its organic or 100% natural pet food brands, Merrick and Purina Beyond) with (ii) growth in entry-level priced products through its PPP ('popularly positioned products') range. PPPs are affordably priced, nutritionally enhanced, appropriately formatted (e.g. sold in smaller sizes or pack formats) and easily accessible (e.g. in discount channels) to cater for lower-income consumers globally. Nestlé's PPP range covers most of its categories, including beverages, culinary, dairy and confectionery. Nestlé produces PPP versions of major global brands including Maggi, Nido and Nescafé. PPPs were originally designed by Nestle to meet the needs of low-income EM consumers, but this has been successfully rolled out across DMs (particularly Europe) to cover all income levels and provide solutions to changing purchasing patterns. Through PPPs, Nestle gives consumers an opportunity to trade up and down without trading out of its products. PPPs now account for c.14% of Nestle's annual sales (versus 8% in 2009) and are enjoying low-teens organic growth (c.3x faster than Nestle group sales).

Unilever has a similar strategy (playing what it has termed the 'price piano', i.e. ensuring that it covers all price points from low-end to premium) and is also now focused on premiumising its products to improve gross

margin - from premium ice cream (Talenti Gelato, GROM) and tea (T2) to sensorial fabric conditioner (Comfort Perfume Experts) to compressed deodorants. In Foods, its Savoury Cooking ingredients portfolio (e.g. Knorr Stockpot, Baking Bags, Cubes, etc.) has grown >50% organically in the past 5 years in EMs (which now makes up 40% of its Foods business), but exposure to low-growth categories, such as spreads and mayonnaise, holds back its growth in DMs, whilst its HPC business (c.65% EM-based) has been impacted by a sharp slowdown in market growth, due to declining consumer affordability and greater local competition.

Danone has historically been highly successful at premiumisation (e.g. Activia and Actimel in Europe, super-premium infant formula in China and Aquadrinks). But arguably the company was slower to react in terms of adjusting its portfolio for a more frugal consumer in Europe, with price gaps of its Acti-brands versus competitors proving to be too wide during the recession, particularly as the brands can no longer be advertised with specific health claims under EFSA. However, Danone appears to be making significant steps towards improving its portfolio, working on making it more 'value added' at all price points.

Exhibit 51: The world will see strong population growth at lower and upper income levels, suggesting portfolios need to be geared towards polarisation (premiumisation + value/entry-level will be largest growth drivers)



Source: UN and World Bank via Nestle, Morgan Stanley Research

Exhibit 52: Danone's brand positioning covers broad price points



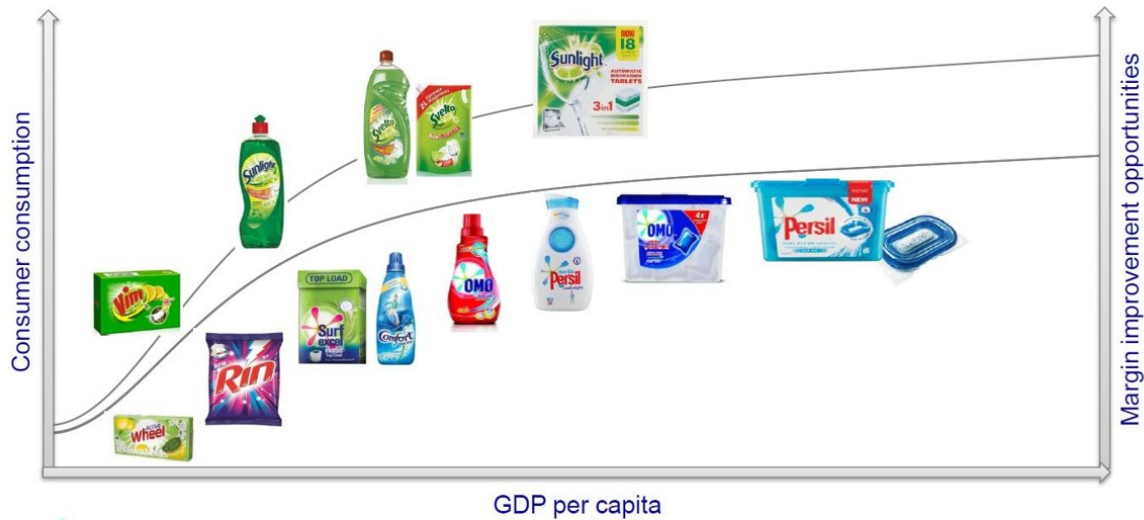
Source: Company presentation

Exhibit 53: Nestle's multi-price-point/PPP strategy



Source: Company presentation. Note: Coffee index based on price per cup

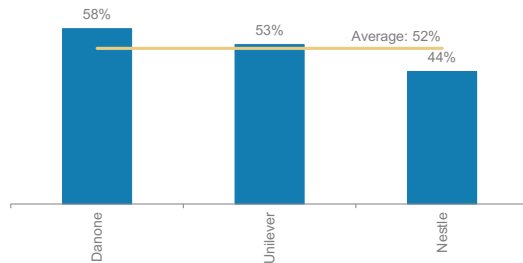
Exhibit 54: Unilever: 'Maxing the Mix' (Premiumisation) strategy in Homecare, driven by consumer upgrading



Source: Unilever Presentation, Morgan Stanley Research

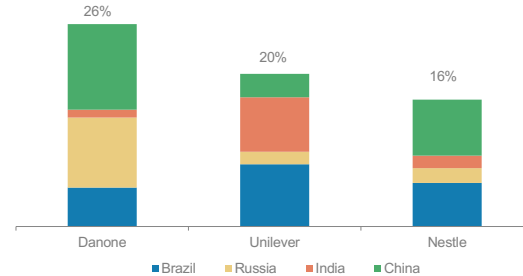
EU Food companies are likely to apply their experience in EMs to drive premiumisation and brand sales through innovation, in our view: EU Food companies like Nestle and Unilever have years of experience in understanding EM consumers and have been present in some countries, like India, for nearly a century. This provides the companies with unique insight into how to straddle the portfolio and also innovate within the brands to premiumise even the lower income consumer.

Exhibit 55: Emerging market exposure, 2015e



Source: Company Data, Morgan Stanley Research estimates

Exhibit 56: BRIC exposure



Source: Company Data, Morgan Stanley Research

EU Food companies have ~50% of sales from EMs and ~20% from BRICs. Companies like Unilever have used their experience in these countries to develop brands from more recent acquisitions. The success of TRESemmé, a relatively premium brand, has been a stand out example of brand development through increased distribution and brand building by Unilever, and this has helped improve Unilever's positioning within premium hair care. It is pertinent to note that the growth since the brand's acquisition was largely fuelled by EMs, and more specifically Brazil . We estimate that Brazil and India have contributed to over two-thirds of TRESemmé's growth since the acquisition. TRESemmé Brazil has proven to be one of the most successful launches for Unilever, adding over €150mn in revenues in the first year since launch (representing ~15% of the entire retained turnover from the Alberto Culver acquisition). In India, TRESemmé has been the fastest Unilever brand to Rs1bn (~€14mn) for Unilever India. The success of TRESemmé demonstrates Unilever's understanding of EMs where it has been able to cater to all types of consumers by providing different SKUs (stock-keeping-units) and price points.

Exhibit 57: TRESemmé - Different SKUs to Cater to Different Consumer



Source: Unilever, Morgan Stanley Research

Exhibit 58: Major Indian HPC companies including Unilever and P&G premiumise the lower income consumers by offering smaller SKUs of premium brands



Source: Unilever, Morgan Stanley Research

Nestle has also used similar learning experiences to offer premium products at affordable price points and premiumise the consumer. It has also been able to innovate and premiumise developed market / high income consumers through the launch of Nespresso and Nescafe Dolce Gusto, which have each become >CHF 1bn brands. An interesting case study is also on its KitKat brand in Japan. The premiumisation of KitKat in this market has been of particular note, with the price of a limited edition KitKat (sold in a Nestle retail shop – ‘Kit Kat Chocolatory’ – at up to 5x the price of a mainstream KitKat).

Exhibit 59: Nestle India - uses a strategy of offering premium brands at affordable price points



Source: Nestle India presentation

US Food

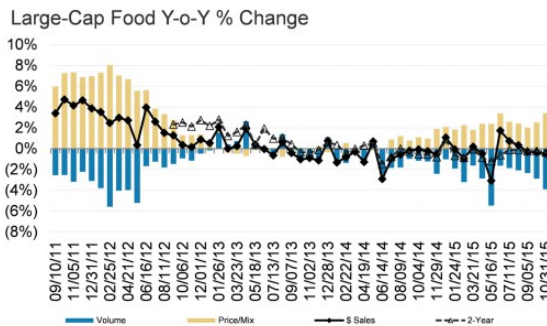
Bottom Line

The companies most favorably positioned to navigate growing income inequality are those that can successfully innovate their products to address changing consumer preferences towards better-for-you foods, increased snacking, and a growing focus on value, in our view. We see MDLZ as well-positioned to benefit from these trends, given that the company is innovating through new packaging formats to address growth at the low end, participates in the higher growth snacking category, and is increasing marketing spend to support brand building and consumer awareness. In addition, WWAV should benefit from continued growth in the natural/organic segment

Most Favourably Positioned? WWAV, MDLZ

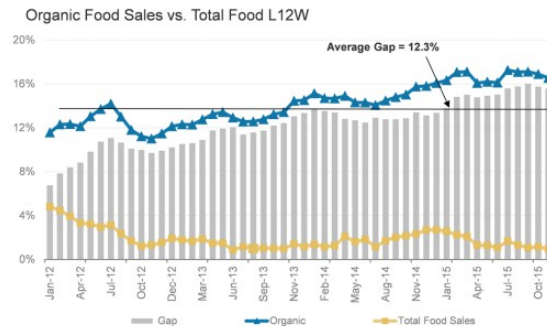
Within the US packaged food sector, the widening gap between high and low net worth individuals has manifested itself in several ways, with increasing consumer cost consciousness leading to tepid industry growth, but also to isolated pockets of expansion among the premium natural/organic sub-segment. In particular, US large-cap packaged food industry sales have increased at only a 0.4% CAGR between 2011-2015, with volume declining ~1.5% annually due to a reduction in store trips, lower pantry loading and consumer waste, and an increased focus on buying necessities. This impact has been exacerbated by the reduction in the Supplemental Nutrition Assistance Program (SNAP) starting in late 2013 (affecting ~15% of Americans who receive Food Stamps) as the size of the program was reduced by ~\$5 billion in fiscal 2014, and an additional \$6 billion throughout 2015 and 2016, presenting an estimated ~40-70 bps annual headwind to food expenditures. Additionally, traditional packaged food sales have been impacted by a shift in consumer preferences towards healthy, better-for-you foods and fresh produce, benefiting growth in the perimeter of the store, as well as natural/organic products. As a result, the premium-priced natural and organic food segment has grown by ~13% on average since 2010, significantly outpacing total food sales growth.

Exhibit 60: US Large-Cap Food Sales have been Soft



Source: Nielsen data, Morgan Stanley Research

Exhibit 61: Organic Food Sales have Outpaced Total Food Sales



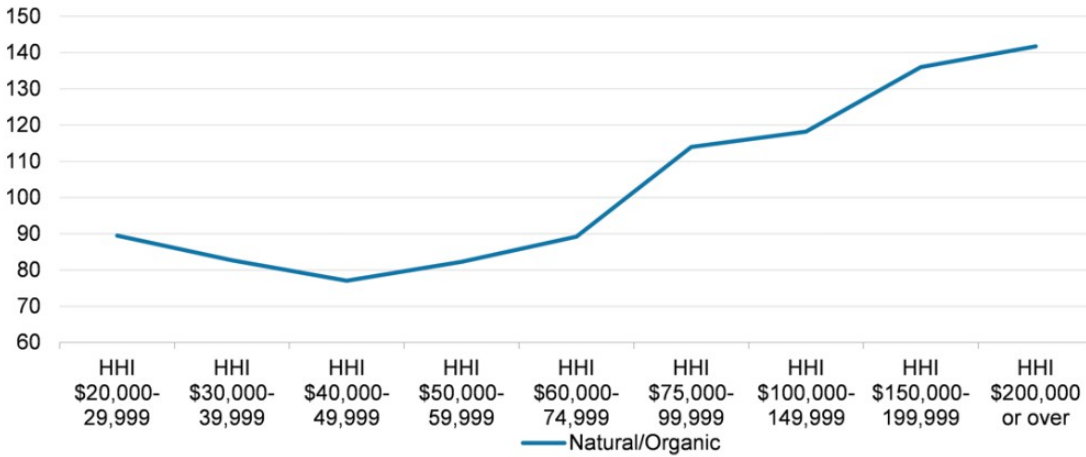
Source: Nielsen data, Morgan Stanley Research

US Food manufacturers have tried multiple approaches to spur growth, given consumers' increased cost consciousness. These have included heightened promotional activity in 2014, which did not result in the anticipated lift in sales, and more recently, a focus on providing better consumer value through optimizing packaging sizes and price points. For example, the effort to better capitalize on the low end consumer is apparent in Mondelez International's (MDLZ) new packaging formats, such as smaller pack sizes at more affordable prices that improve accessibility to new households and channels. In addition, Pinnacle Foods (PF) recently introduced 'Perfect Size' packaging that caters to one- and two-person households, while Campbell Soup Co. (CPB) is expanding its presence in value channels through new products, package sizes, and price

points.

Exhibit 62: Natural/Organic Foods Skew Higher Income

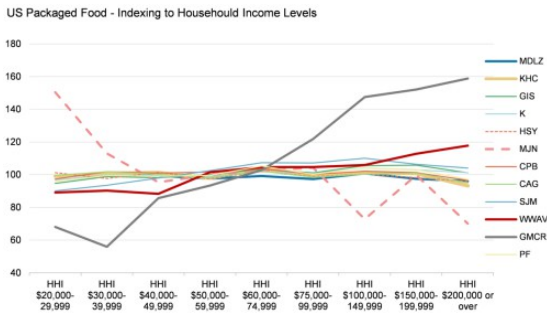
Natural/Organic Indexing to HHI



Source: MRI data, Morgan Stanley Research

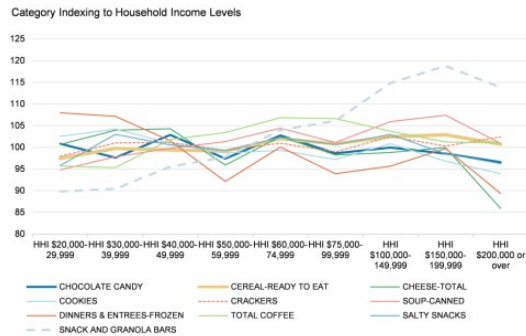
Looking across our coverage, few companies stand out as being particularly exposed to the low and high ends of the income spectrum. The companies with the most exposure to the high income demographic include WhiteWave Foods (WWAV), given its focus on organic and better-for-you categories, and GMCR, as it sells premium priced single-serve coffee machines and K-Cups. Mead Johnson (MJN) appears to have the greatest exposure to the low-end consumer, given that it sells infant formula, which tends to be more widely used by lower-income households where mothers may have difficulty breast feeding because they need to return to work or where there is potentially less awareness about the health benefits of breastfeeding. From a category perspective, there is little distinction in the consumption of the top 10 largest food categories across various income levels (we would note that our data captures whether someone has purchased a product in the last six months, but does not capture the frequency of their purchases). The one category that appears to over index to higher income individuals is snack and granola bars.

Exhibit 63: Generally Consistent Levels of Exposure to Income Groups, with the Exception of WWAV, GMCR & MJN



Source: Nielsen, MRI, Morgan Stanley Research

Exhibit 64: The Top Ten Food Categories in the US Have Relatively Similar Levels of Exposure Across Income Levels



Source: Nielsen, MRI, Morgan Stanley Research

Companies are also expanding their offering of better-for-you, natural/organic foods to tap into this high growth segment. Given their substantial price premium, organic and better-for-you foods over-index to higher income households, and growth in this demographic group should continue to benefit the category. This dynamic has benefited WWAV, whose products include plant-based beverages and yogurt, organic milk, and organic packaged salad, and have enabled the company to grow organic sales at 10-11% annually. While

traditional packaged food companies have not historically participated in this category, they are becoming increasingly focused on growing their exposure to this segment in order to accelerate topline growth through product innovation/reformulation to simplify the number and enhance the quality of ingredients, as well through M&A. This is apparent in General Mills' (GIS) recent launch of gluten-free Cheerios, a 25% reduction in Yoplait sugar content, and acquisition of Annie's. Similarly, CPB acquired Bolthouse Farms in 2012 to expand its offering of fresh produce and premium beverages.

If inequality of income and wealth persists and widens further over the next 20 years, we would envision the following longer-term implications for the US Food industry:

- **Increasing demand for natural/organic products should, over time, make healthier foods more accessible to lower income demographics.** Natural/organic food consumption is more prevalent among higher income households because of their premium price points, which are driven by factors including: (i) higher production costs; (ii) elevated demand that has exceeded supply; (iii) better living conditions for livestock; (iv) greater crop spoilage due to the types of pesticides used; (v) the cost of obtaining organic certification; and (vi) higher costs across marketing/distribution due to relatively small volumes. However, as the larger food companies increasingly participate in this category and modify their existing portfolios towards healthier ingredients, these efforts should help democratize the cost of high quality food. In particular, their increased scale and efficiency in manufacturing as well as marketing should not only reduce the cost of production/sourcing but also elevate awareness of healthier eating, thereby making such food more affordable and accessible.
- **Companies may increasingly focus on international expansion.** Growing income disparity in the US could further encourage companies to expand internationally to potentially offset declining middle class demand in the US. The companies in our coverage that are best positioned to benefit from growth outside of the US are MJN and MDLZ, which derive ~70% and 75% of their sales outside of the US, respectively. However, US Packaged Food companies are making an increased effort to diversify outside of the US, with most of the companies in our coverage having exposure to international markets. In particular, Kellogg recently announced its entry into a JV in Nigeria, while GIS is expanding Yoplait yogurt in China and WWAV currently has a JV to commercialize plant-based beverages in China.

Which companies are most favourably positioned? We believe these would ultimately be companies that can successfully innovate their products to address changing consumer preferences towards better-for-you foods, increased snacking, and a growing focus on value. We see MDLZ as well-positioned to benefit from these trends, given that the company is innovating through new packaging formats to address growth at the low end, participates in the higher growth snacking category, and is increasing marketing spend to support brand building and consumer awareness. In addition, MDLZ's significant exposure outside of the US should better insulate it from evolving demographic trends in this market.

In addition, WWAV should benefit from continued growth in the natural/organic segment and offers a distinctive and compelling growth profile. WWAV offers a best-in-class organic growth outlook, driven by its concentrated portfolio of brands in high-growth food categories (plant-based beverages, coffee creamers, organic dairy), and recent topline growth has reached double-digits on sustained category trends, strength of successful innovation, and attractive acquisitions. In addition, WWAV has multiple levers that should facilitate 50-75 bps of annual margin expansion including, (i) favorable segment mix dynamics; (ii) leveraging new manufacturing, warehouse, and distribution capacity; and (iii) SG&A and gross margin efficiencies. As a result, we believe WWAV could generate ~20% EPS growth during 2015-17E.

US Tobacco

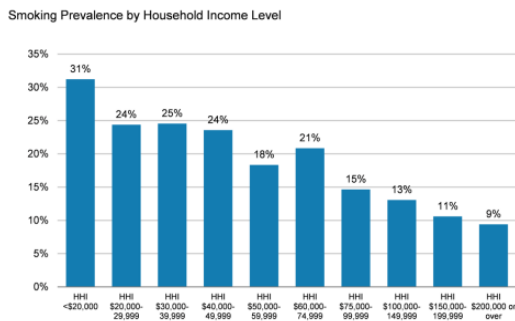
Bottom Line

We would expect the tobacco companies to be negatively impacted by widening income/wealth inequality as evidenced by the meaningfully lower smoking prevalence among higher income individuals. Despite the relatively inelastic nature of cigarettes, over time, as low and middle class consumers may have to allocate an increasing amount of their income to pay for costs such as childcare, healthcare spending, and retirement saving, their discretionary income available for cigarette purchases will likely decline, resulting in elevated cigarette volume declines as well as more limited ability for the tobacco manufacturers to raise prices.

The US tobacco industry is facing secular declines in cigarette volumes (~3-4% annually) due to a variety of factors including: (i) declining youth smoking prevalence; (ii) greater usage of alternative tobacco products such as moist smokeless tobacco/e-cigarettes; (iii) lower daily smoking rates among non-Caucasian ethnicities; and (iv) indoor smoking bans. In addition, while cigarettes are relatively inelastic given their addictive nature, they are impacted by economic conditions, such as unemployment rates, consumer confidence, the housing market, and gas prices. Despite declining volumes, the tobacco manufacturers have been able to maintain operating profit and high-single-digit EPS growth through higher pricing, which has averaged ~5% in the last several years, and cost cutting efforts.

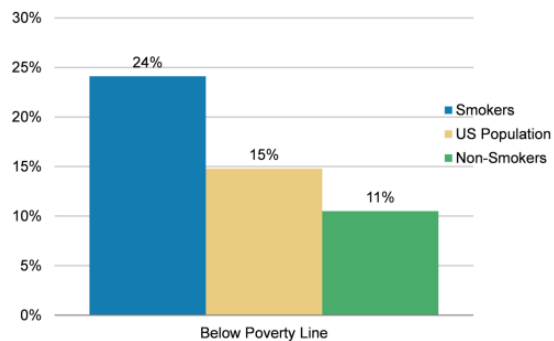
In terms of income exposure, the tobacco companies skew towards lower income/net worth demographics as smoking rates are substantially higher at lower income levels. In particular ~24% of US smokers fall below the poverty line, and socio-economic status has been found to be the single greatest predictor of tobacco use, serving as a way to relieve stress, cope with boredom given lower employment levels, and act as a companion to alcohol and caffeine usage (http://www.tobaccofreemaine.org/channels/special_populations/low_income_and_education.php). In addition, given lower education levels, lower income individuals may be less aware of the health risks associated with smoking.

Exhibit 65: Higher Smoking Prevalence Among Lower Income Levels



Source: MRI data, Morgan Stanley Research

Exhibit 66: 24% of People Below the Poverty Line Smoke



Source: CDC, US Census Bureau, Morgan Stanley Research

What happens if inequality of income and wealth persists and widens further over the next 20 years?

We would expect the tobacco companies to be negatively impacted by widening income/wealth inequality as evidenced by the meaningfully lower smoking prevalence among higher income individuals. Despite the relatively inelastic nature of cigarettes, over time, as low and middle class consumers may have to allocate an increasing amount of their income to pay for costs such as childcare, healthcare spending, and retirement saving, their discretionary income available for cigarette purchases will likely decline. These dynamics may result in elevated cigarette volume declines as well as more limited ability for the tobacco manufacturers to raise

prices. While this may not be favorable for the industry, this would likely be beneficial to public health as it could foster lower smoking prevalence.

US and European Beverages

Bottom Line

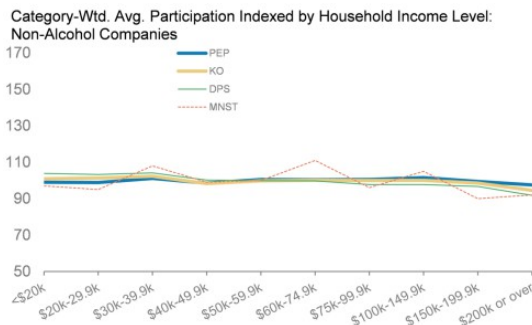
Premium spirits/beer manufacturers are best positioned to capture the rising income inequality with their skew to higher-end consumers from a category perspective and skew to premium brands. Overall, we believe Constellation Brands, Diageo, Pernod and BrownForman are best positioned to capture the growth in premium spirits/beer.

Most Favourably Positioned: Constellation Brands (STZ), Diageo (DGE), Pernod (RI) and Brown-Forman (BFB)

Within beverages, rising income inequality in the US and the strengthening of the high end consumer should benefit alcohol companies that are focused on the premium end, given the aspirational nature of brands in the category, as well as the on-premise (bar/restaurants) channel exposure to high-end consumer spending, which is one-quarter of alcohol mix. Within our coverage, we believe Constellation Brands (STZ) would be the largest beneficiary from this phenomenon, given its leverage to product categories (imported beer/wine) that skew to higher-end consumers, and given STZ also has a premium brand portfolio. Diageo (DEO), Pernod (RI), and Brown-Forman (BFB), should also benefit, with their portfolios skewed towards premium spirits.

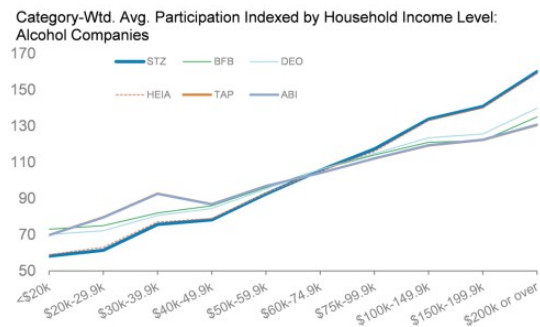
Among the non-alcohol beverage companies we cover, we believe that income inequality has been much less of a factor given the less aspirational nature of major categories. However, we do believe an indirect benefit helping to offset the negative impact of weaker low-end consumer spending has been the recent favorable shift among beverage companies (particularly Coke, and to a lesser extent Pepsi and Dr. Pepper) to focus on smaller, lower price per unit packages (albeit higher price per oz), which has driven category profitability and a more rational US pricing environment with limited demand elasticity.

Exhibit 67: Category Participation Is Relatively Consistent Across Non-Alcohol Companies



Source: GFK MRI, Morgan Stanley Research

Exhibit 68: Alcoholic Beverages Companies' Category Weighted Average Participation Over-indexes Towards High End Consumers



Source: GFK MRI, Morgan Stanley Research

Income Inequality: According to MRI data, we see a clear distinction between the alcohol and non-alcohol companies we cover in regard to category participation (ie. % of individuals who have used a product within a category within the last 6 months) by household income level. As illustrated below, using a category sales weighted average for each company, STZ most heavily over-indexes towards the high end consumer, followed by DEO, RI and BFB. On the other hand, PepsiCo (PEP), Dr. Pepper (DPS), Monster (MNST) and Coke (KO) category participation rates are much less differentiated across income groups, while under-indexing slightly at

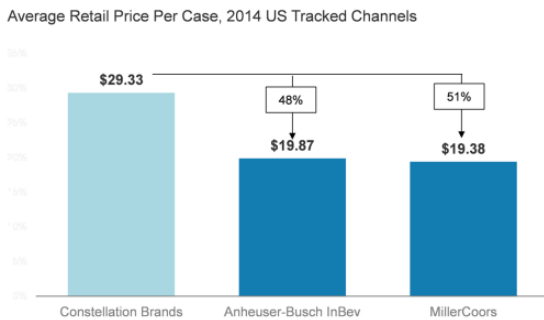
the very high end. Given much greater sensitivity to income demographics, under the context of the debate on income inequality, we would focus a greater amount of attention on the alcoholic beverages space.

Alcohol Industry: A rebound in the high-end US consumer has benefitted alcoholic beverage companies in general with the more aspirational nature of the category and reliance on bar/restaurant traffic, and particularly those companies with premium priced brands. Within beer, elevated income inequality with a continued and disproportionate strengthening of the high-end consumer favors premium priced imported and craft beers, while a tepid recovery among the low end consumer would continue to weigh on mainstream domestic beer brands. Broadly, wine and spirits typically skew towards the higher end consumer and have been gaining category share from beer, with increasing demand for higher quality/more aspirational brands supporting higher growth on the premium end.

We Flag STZ as the Best Way to Play the Secular Income Inequality Theme: Within our coverage, we believe that Constellation Brands is most favorably positioned to benefit from rising income inequality, given its portfolio of premium Mexican imported beer, and wine and spirits business. Not only do STZ's product categories skew to high-income consumers, but the premium nature of its beer portfolio also drives greater consumption by high-end consumers, with STZ's beer portfolio (worth 60% of STZ profit) at an average +36% retail price per case premium vs. the industry average YTD. The price premium is an even greater ~50% relative to its major beer competitors Anheuser-Busch InBev and MillerCoors, which collectively represent ~75% of the US beer market by volume.

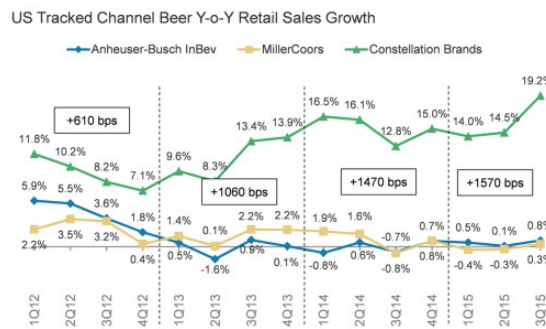
As illustrated in **Exhibit 70**, partially aided by a recent consumer spending recovery of high-end consumers, Constellation's tracked channel beer retail sales growth has accelerated on an absolute basis, as well as relative to major beer peers, with +1,570 bps of outperformance YTD vs. the average growth rates of Anheuser-Busch and MillerCoors, up from +1,470 bps in 2014, +1,060 bps in 2013, and +610 bps in 2012. While a number of other factors are driving this expansion, including improved marketing and execution, demographic tailwinds from Hispanic consumers, and more recently the launch of Corona cans, we believe that improving consumer spending has played a meaningful role in Constellation's acceleration relative to lower priced mainstream competitors.

Exhibit 69: STZ Beer Sells at a ~50% Premium to Major Beer Competitors



Source: Nielsen, Morgan Stanley Research

Exhibit 70: STZ Beer Sales Growth Accelerating on an Absolute and Relative Basis

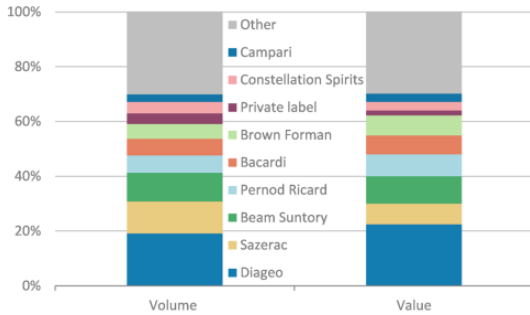


Source: Nielsen, Morgan Stanley Research

Within Spirits, Diageo is a good way to play the Secular Income Inequality Theme, as well as Pernod:

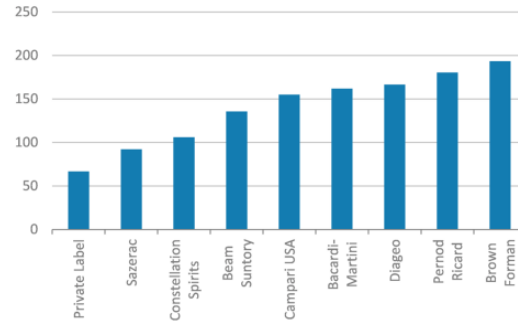
We believe that Diageo is well positioned to benefit from rising income inequality given its premium portfolio, both in the US and in other developed markets. In the US, Diageo is the market leader in volume terms, with 19% share in 2015 YTD according to Nielsen data. The average price per unit for Diageo is +17% premium to the US spirits market, and Diageo's value share of the spirits market is 22%.

Exhibit 71: Volume and value market share



Source: Nielsen xAOC ex Washington, Morgan Stanley Research

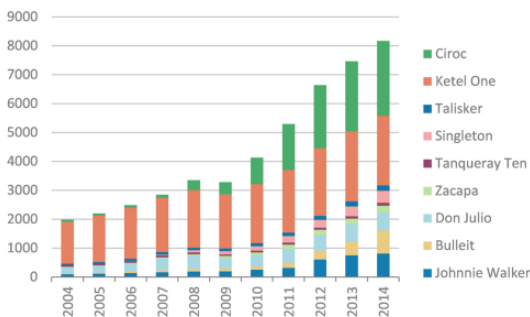
Exhibit 72: Average price per unit



Source: Nielsen xAOC ex Washington, Morgan Stanley Research

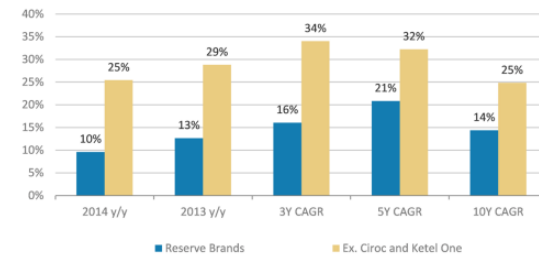
In the US and elsewhere, Diageo's reserve brands should also benefit from an increased concentration of wealth. Since 2005, premiumisation has accelerated and Diageo's reserve brands portfolio have posted robust growth. The growth of wealthy consumers is a fundamental driver for the growth of the premium spirits market. To the extent that increasing income/wealth inequality is enhancing the spending power of wealthy consumers, it should help drive demand for high end spirits, such as Diageo's reserve portfolio.

Exhibit 73: Reserve Brands volume since 2004



Source: IWSR (2014), Morgan Stanley Research. Note: the agreement with Ketel One started in 2008

Exhibit 74: Reserve Brands volume growth rate



Source: IWSR (2014), Morgan Stanley Research

US Household Products & Personal Care

Bottom Line

Within household products, income inequality is unlikely to have a major demand impact given the products tend to be more essential staples items and demand less sensitive to consumer income. However, we would point to companies positioned in categories where brand equity is more important and where we see trade-up potential as better positioned to benefit from rising income inequality. We believe Estee Lauder is poised to benefit the most from rising income inequality.

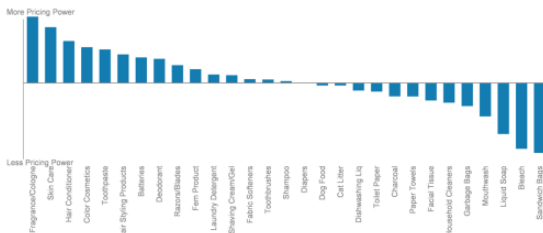
Most Favourably Positioned: Estee Lauder (EL), Blue Buffalo (BUFF)

Within household products, income inequality is unlikely to have a major demand impact given the products tend to be more essential staples items and demand less sensitive to consumer income. However, we would point to companies positioned in categories where brand equity is more important and where we see trade-up potential as better positioned to benefit from rising income inequality.

We prefer companies with greater exposure to beauty and personal care categories, which have higher pricing power, vs. typical household products categories that have greater trade-down risk and higher private label penetration, and less product differentiation within specific sub-categories. We conducted an AlphaWise consumer survey of 2,000 US consumers in May of 2013 to gauge which staples companies have the most pricing power, based on nine key questions related to consumer trade-down. Within the HPC space, we saw a clear distinction in pricing power between household products categories (e.g. bleach, soap, cleaners, etc.), and personal care categories (e.g. beauty, oral care, skin care, etc.), which have greater pricing power, as illustrated in our survey results below.

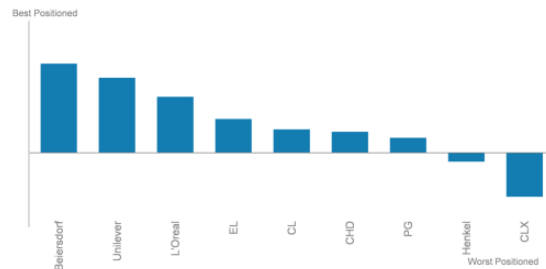
Based on category exposure alone (ie agnostic of brand equity), Beiersdorf, Unilever, L'Oreal, and EL are the most favorably positioned from a pricing power perspective, while Clorox, Henkel, and PG are the least favorably positioned, in our view.

Exhibit 75: Personal Care Categories Had More Pricing Power than Household Products Categories...



Source: AlphaWise, Morgan Stanley Research

Exhibit 76: ...Companies with Greater Exposure to Personal Care Categories Had Greater Pricing Power

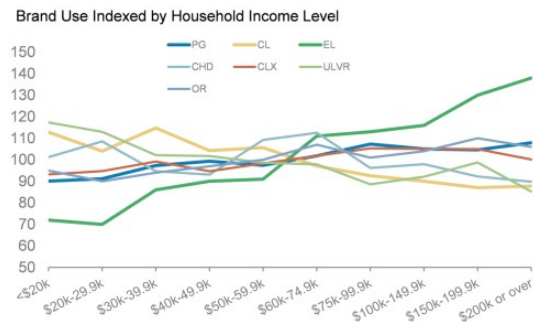


Source: AlphaWise, Morgan Stanley Research

Within personal care, beauty products tend to have the greatest pricing power, with brand equity a critical component behind purchasing decisions. Additionally, the highly aspirational nature of beauty care products has enabled high-end brands to command significant price premiums relative to the category in general. Within our coverage, Estee Lauder (EL) stands out as the most favorably positioned from the perspective of a continued strengthening in the high-end consumer, given its positioning as a pure-play prestige beauty company. According to MRI data on consumer use of key brands by company, EL significantly over-indexes to high-end consumers, whereas brand use is less differentiated by income levels among other HPC companies, as illustrated in [Exhibit 77](#).

We also point out Blue Buffalo as positioned to benefit from growth in the higher income segment (BUFF). BUFF is the leading brand of wholesome natural pet food (*Blue Buffalo defines wholesome natural as brands that achieve their nutritional goals by using only natural ingredients, and does not contain chicken or poultry by-product meals, grain proteins, corn, wheat, soy, or fractionated grains*), a premium sub-category within the overall pet food market that typically sells at premium price points and is now at 9% total pet food unit share. As illustrated in [Exhibit 78](#), the wholesome natural pet food sub-category has gained a large +600 bps of \$ market share of the total pet food industry from 2011-2014 to 17%, largely at the expense of lower priced, value engineered and private label players. A significant driver of this shift has been the humanisation of pets trend, where pet parents have become much more critical of what their pets are consuming, leading to an increased willingness to pay premium prices for enhanced well-being. Within the faster growing wholesome natural segment, Blue Buffalo has been the clear winner, with industry leading market share gains over the last several years despite a premium price point. To illustrate BUFF's distinctive momentum and positioning vs. the

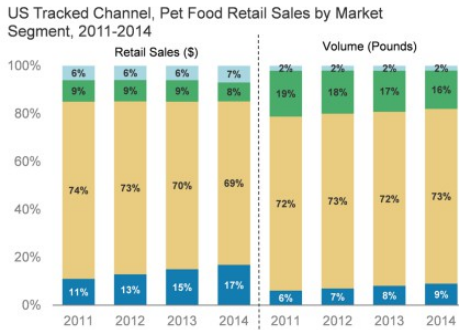
Exhibit 77: Within HPC, EL Over-Indexes to the High-End Consumer to a Greater Extent than Peers



Source: GfK MRI Data, Morgan Stanley Research

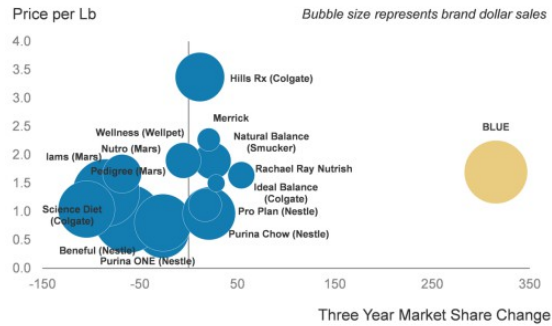
broader pet food industry (including engineered brands and vet brands), in **Exhibit 79** we mapped three-year market share change (2011-14) by brand vs. average price points. Blue stands out within the group, with market share gains far outpacing its key competitors, while also maintaining a higher-end price point.

Exhibit 78: Premium Priced Wholesome Natural Dog Food Has Gained Significant Market Share at the Expense of Value Segments...



Source: Company data, Morgan Stanley Research

Exhibit 79: ...With Blue Buffalo the Most Significant Driver of Wholesome Natural Category Share Gains



Source: Company data, Morgan Stanley Research

With a continued strengthening of the high end consumer, we would expect for premium priced and higher quality wholesome natural pet food brands to continue gaining market share at the expense of lower priced, value brands. We believe that BUFF would be a clear beneficiary here given its 100% exposure to the wholesome natural segment, leading market share position within wholesome natural, and strong brand equity.

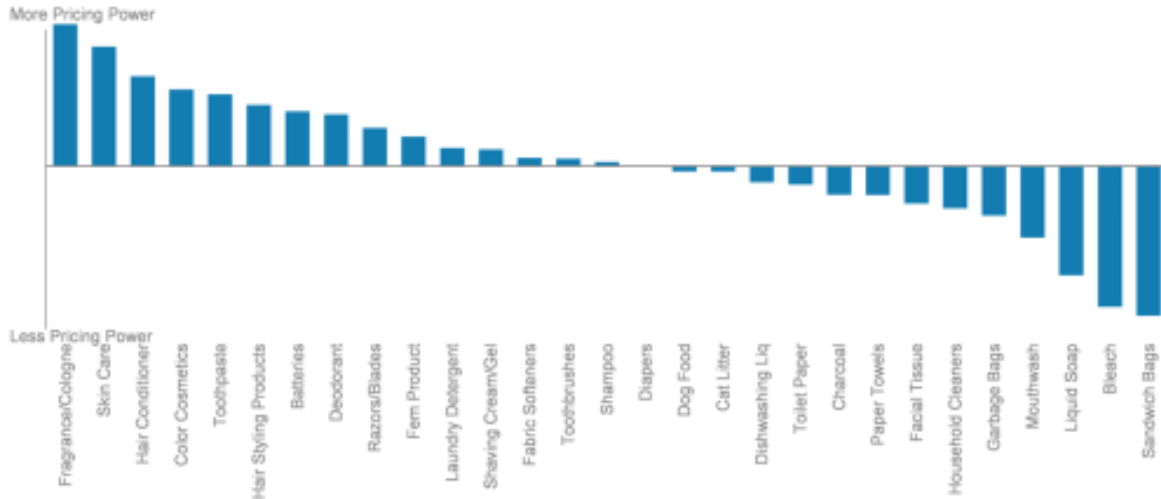
European Household Products & Personal Care

Bottom Line

In European HPC, inequality is likely to drive polarisation of growth drivers across categories, with market growth driven by premium (eg products including Health & Wellness benefits) and the value end of the market, with the mass market capturing less of the market growth. All the companies in the European sector have product ranges in place to address this. We however believe that Reckitt and L'Oreal appear particularly well positioned, as both have successful track records in driving growth at the ends of their markets: L'Oreal through its well established strategy to cascade innovations over price points, and RB to leverage uptrading in Consumer Health while covering a wide range of price points in Hygiene and Home

With growth across both the Home and Personal Care categories increasingly driven by the top and bottom end of the markets, the companies' relative success in adapting to this will be a key driver of relative growth rates, in both developed and emerging markets. Companies across categories in the HPC space have broadened product ranges, to cover both the top and lower parts of the price ranges within individual categories to cater to both the while products in mid-market positions capture less of the growth. Overall we think that this differentiation strategy has potential to be more effective in Personal care than in Household care - with many Household care categories tending to be more essential staples items and demand less sensitive to consumer incomes. Past surveys we have conducted on the other hand found that Personal care and particularly Beauty categories had higher pricing power based on brand loyalty and lower risk of trade down, as outlined in Exhibit 79 below.

Exhibit 80: Personal Care Categories Had More Pricing Power than Household Products Categories...



Source: AlphaWise, Morgan Stanley Research

Within this context we think that Reckitt Benckiser and L’Oreal are well positioned for the bifurcation in the market resulting from rising inequality, with both companies having ranges covering price points: L’Oreal within the personal care space covers the top end in its Luxe division and mid to lower end in Consumer Products. Reckitt’s Consumer has products to capture trade up, particularly in Consumer Health, while the group’s Home and Hygiene include a range of price points.

Beiersdorf has positioned the Nivea brand at 'democratic' price points, targeting to access consumers across mass market but also budget channels - but leveraging the strength of the Nivea brand. The company's innovations since 2013 have been aimed at systematically covering targeted price points within its six core categories, from the upper end with Nivea Cellular and Nivea Q10 Pearls Serum, to the Nivea Care cream launched earlier this year. A key part of this effort is the focus on regionalisation since 2014, with the company investing in production and product development infrastructure in many markets (eg India and Latin America) to better target local tastes,

L’Oreal remains highly focused on differentiated innovation, leveraging its leading R&D organisation to lead the market in product performance and this had traditionally left it positioned at the top end on pricing in many of its categories. And while across markets L’Oreal aims for its brands to be aspirational, as part of its strategy to target 1 bn new consumers, the company has worked more with differentiation across both points of the price spectrum. This applies both to developed and emerging markets with L’Oreal aiming at incremental consumers also in Western Europe and the US. The group's brands are positioned to complement each other across the price pyramid and through cascading innovations are leveraged across brands.

Reckitt Benckiser is leveraging premiumisation opportunity in Consumer Health, adapting the Household portfolio. A key driver of the group’s aim to shift the portfolio towards Consumer Health is the demographic tailwinds in these categories combined with high brand loyalty which underpins pricing power behind these brands, which for example has resulted in low (and not expanding) private label share in many Consumer Health categories. Within the Hygiene and Home divisions, RB has also developed more differentiation within the product range, both to enable it drive growth in EMs but also to target lower price points in developed markets, with smaller pack sizes or products such as the Vanish Laundry bar, albeit while maintaining a strong emphasis

Exhibit 81: Price ranges by various HPC categories

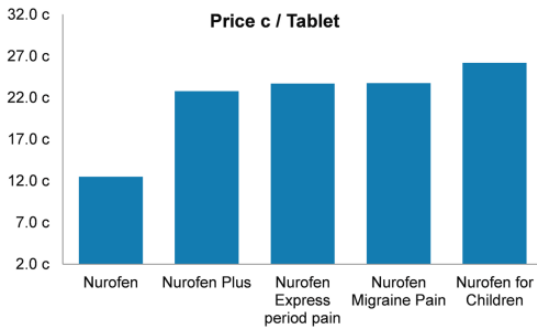


Source: Company Data, Amazon.com, Sephora.fr, boots.com, Morgan Stanley Research

Note - Prices for skin care brands are per 20ml and those for toothpaste are per 75ml. Prices for detergents are for similar SKU products

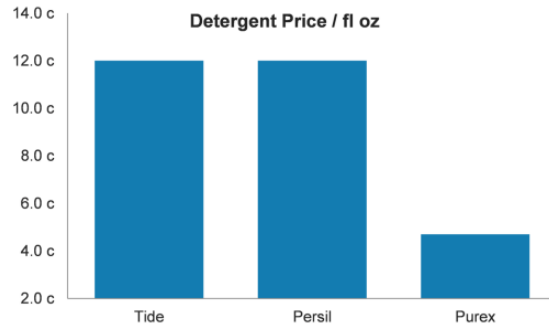
on product performance.

Exhibit 82: Nurofen tablets price range



Source: Boots.com, Morgan Stanley Research

Exhibit 83: Detergent Price range



Source: Walmart.com, Morgan Stanley Research

Henkel differentiating within mass market positions. Within its HPC business Henkel's key brands are positioned in the mass market segment but with a range of brands to cover both the upper (eg Persil and Schwarzkopf Gliss Kur) and lower (Weise Riese in detergents and Schwarzkopf Scauma in hair care) ends of the price spectrum. An interesting example of this is the launch of Persil detergents in the US early this year, which was launched in an exclusive co-operation with Wal-Mart (being extended to other retailers now) but at a marked price premium to its established Purex brand in the US. In haircare the launch of Schwarzkopf Essence Ultime is also being rolled out at a premium to established parts of the Schwarzkopf range.

SCA targets a range of price points with branded and private label products. SCA's products in the Hygiene space (baby diapers, incontinence products, femcare and tissue) are some of the least discretionary in the HPC space in our view. While the company has put more emphasis on innovation in the last years, with a large number of products launched in 2015, we think that a key attraction for the group is its ability to cater to all ends of the price spectrum. In Tissue, about half of sales are private label with SCA one of the leading European suppliers here. At the other end of the range for example the Libero brand is at a premium positioning in its key markets (Nordics, Eastern Europe and more recently launched in China) - SCA has here gone through a significant investment project to upgrade its production technology to improve product quality (eg Libero Touch launched recently).

Healthcare: A Tale of Multi-Regionalism - The Rise of the Healthcare Consumer in the US and Push for Innovation in the EU

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Bottom Line

Healthcare trends vary widely across global regions and as such we took a regional approach to discussing the impact of increasing inequalities. In the US, represented by the views of our North American team (Goldwasser/Harrison/Lewis/Schenker/Risinger), healthcare is steadily evolving towards a consumer driven market as high deductible plans give more cost responsibility to consumers and data transparency tools are on the rise. In Europe, represented by Morgan Stanley EU pharma and medtech teams (Meunier/Jungling) market segments continue to diverge as innovation and access to affordable healthcare are increasingly important, and increasing inequalities could further drive growth in cheap generics and consumer healthcare (out-of pocket spending).

Europe and Emerging Market Healthcare

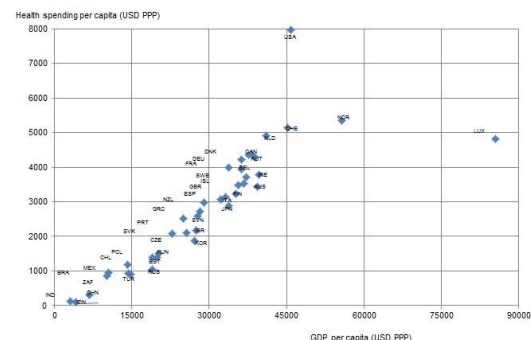
Many developed countries (ex-US) provide government-backed medicine to offer equal healthcare for their populations. An example of European socialized healthcare management is the UK's National Institute for Clinical Excellence (NICE), which states on its website, "Since 1999, we have provided the NHS [National Health Service], and those who rely on it for their care, with an increasing range of advice on effective, good value healthcare, and have gained a reputation for rigor, independence and objectivity." NICE and other cost management bodies manage spending to offset aging populations by applying stringent spending controls.

As shown on the chart below, countries with higher GDP tend to spend more on health. The association appears stronger in countries with low GDP per capita than among OECD countries with a higher GDP per capita.

We believe a **first consequence of increasing inequalities would be an increase in overall drug spending**, as a significant portion of the expected growth is driven by the ongoing surge of the middle class in emerging markets, and rising wealth is associated with greater spending on healthcare.

Economic analysis conducted by the EU parliament shows that richer EU member states appear to spend more on pharmaceuticals, as a result of higher average drug prices and higher per capita consumption in volume terms (or a combination of both). Assuming drug

Exhibit 84: Per capita GDP is driving health spending

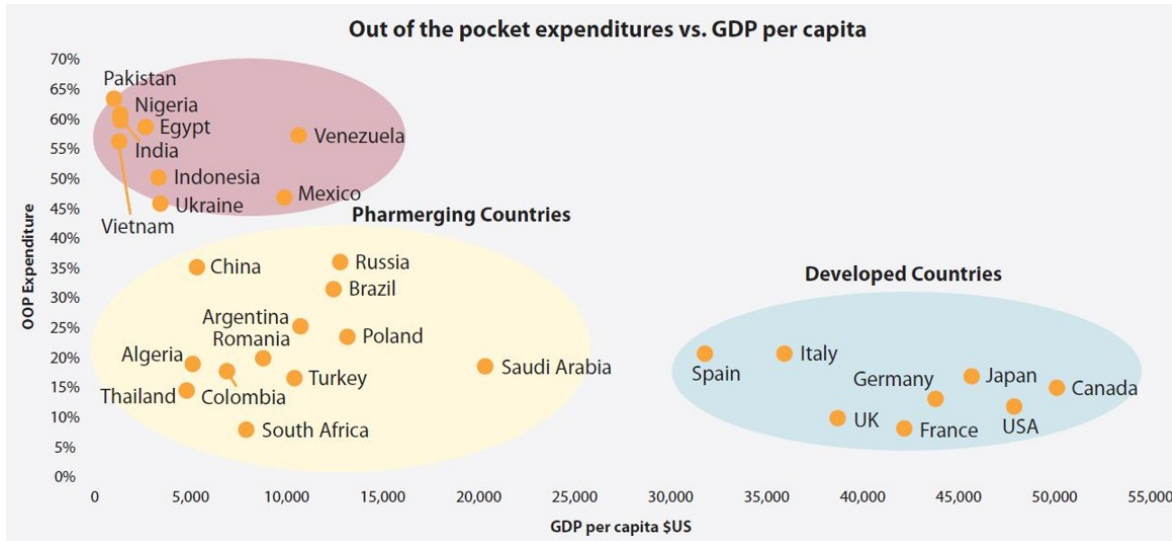


Source: OECD 2011

prices and patient access will continue to be set and controlled by states, **an increase of inequalities would lead (in Europe) to more pricing pressure and increased penetration of generics drugs.**

As shown in the chart below, out-of pocket spending is higher in countries with lower GDP per capita. As a result, we estimate that **increasing inequalities could further drive growth in consumer healthcare (out-of pocket spending)**, not only in countries with low GDP but also in developed countries, where consumers could demand the most cost effective drugs.

Exhibit 85: Out of pocket drug spending is higher in countries with lower GDP per capita



Source: World Health Organization 2011, World Bank 2011

What happens if inequality of income and wealth persists and widens further over the next 20 years?

- **Innovation would continue to be crucial to address unmet medical needs with strong enough clinical differentiation.** Innovation would be more than ever key for sustaining pricing power and address the premium segment.
- **Penetration of generics would further increase, including biosimilars.** The increasing demand for affordable medicines would put economic and political pressure on both private and public payors to ease and increase the use of cheaper copies. Generics of biotech products (biosimilars) would then be a key driver.
- **Companies would have to clarify their choice of business model.** Both the top and bottom of the pyramid could be successfully addressed by a single company, but companies may want to concentrate on leadership in part of the value chain. Companies at the top of the pyramid with undifferentiated products (on medical value or cost) would be exposed to sales and margin squeeze.

Are there any potential beneficiaries from this? One conclusion is to back companies with a high exposure either to innovative pharmaceuticals (with medical differentiation), Consumer Healthcare (low development costs, strong brands, price premium) addressing the wealthy segments, or with generics allowing them to deliver a sustainable business model for the squeezed middle.

In Europe, we think companies with the best exposure are **Roche** (expected to remain a world leading innovation-driven company in oncology), **Novartis** (expected to remain a world leading innovation-driven company in oncology and in generics) or **Novo Nordisk** (expected to remain a world leading innovation-driven company in diabetes). Other players appear well placed at first take, due to high exposure to emerging markets (**Sanofi** expected to remain world leader) and/or Consumer healthcare (**GSK** expected to remain world leader); however, they still have to address the challenge on the rest of their portfolios (erosion in diabetes for Sanofi, erosion in respiratory for GSK) and deliver on innovation. Other companies are still transitioning and have

recently materially increased their investments in R&D (**AstraZeneca**) and/or Consumer Healthcare (**Bayer**).

Within **medical devices** the inequality gap is best examined between major geographic regions, due to different types of healthcare reimbursement systems. And the different healthcare systems can turn an essential medical service involving a medical device into a luxury product. Before going into the various healthcare system models, we thought it would be appropriate to provide a short overview of what medical devices are. Medical devices are products, which help to overcome a medical condition, that can typically not be solved by pharmaceuticals. Some of the main areas include:

- **Orthopedics:** this is a large segment within medical devices which addresses osteoarthritis and requires hip and knee joint replacements, mending broken bones or reducing back pain due to degenerative disc disease.
- **Cardiovascular:** unblocking occluded vessels, addressing irregular heart beat (pacemaker or defibrillator) or replacing heart valves.
- **Imaging Diagnostics:** helping diagnose disease with images from X-ray, MRI or PET machine.
- **In-vitro Diagnostics:** performing tests on human tissue, blood or urine samples to help with disease diagnosis.
- **Dentistry:** addressing cavities, teeth straightening and replacing missing teeth.
- **Dialysis:** providing blood pumps and filters to clean the blood due to kidney failure

Essentially we believe there are four basic healthcare system models when looking at medical device procedures. The **Beveridge Model**, was named after the social reformer William Beveridge who designed Britain's well known National Health Service, where funding is provided directly by the tax payer. Essentially, under this model access to healthcare is free and the patient rarely sees a material bill for the medical procedure performed. Countries which have adopted this model include Great Britain, Spain, most of Scandinavia, New Zealand and Hong Kong. The **Bismarck Model**, is also a socialistic based system and named after Prussian Chancellor Otto von Bismarck, who created the welfare state during the unification of Germany in the 19th century. The model is based on an insurance system, whereby employees join an insurance company, which is not allowed to make a profit. The coverage is funded by both the contribution of the employer and the employee and the insurance companies have to accept everyone. Adopters of this model include Germany, France, Belgium, Holland, Japan, Switzerland and some south American countries. There is the **National Health Insurance Model**, which is more of a hybrid between the Beveridge and Bismarck systems and is found in Canada, Taiwan and South Korea. The fourth model is the **Out-of-Pocket Model**, whereby the patient has to fully fund the medical procedure themselves; this is mostly the cases in poorer countries where insufficient GDP does not allow to provide medical care for the masses and includes most of Africa, India, some South American countries; China used to be in this category, but due to strong increases in GDP, many Chinese now have basic access to government healthcare. Under this model, the inequality of medical care is the greatest, with the richer people readily getting access, while the poorer segment goes without medical attention, which can clearly lead to prolonged illness and death.

Is It Affecting Medical Device Companies? The widening gap between high and low net worth individuals has been affecting some medical companies more than others. In developed countries, companies have invested significantly in R&D to drive improved products, for which payers are willing to pay, while in poorer countries they only get access to significantly older technology. Some medical devices companies have invested in new and fast growing areas, such as aesthetics to accommodate the growing appetite to look forever young; this includes dental implants (effectively artificial dental roots) for a patient who wants a perfect aesthetic smile, breast implants, and skin stretching for wrinkle improvement; the wealthy with high disposable incomes have not hesitated to take advantage of the technology. Other companies such as Smith & Nephew launched the orthopedic industry's no frills hip and knee implant system in 2015 called Syncera, which is the first attempt to unbundle service from product, to be able to provide a more cost effective solution in the developed markets, akin to what we have seen in the airlines industry with Ryanair and easyJet.

Although emerging markets continue to lag the GDP per capital of the developed markets, their growing wealth

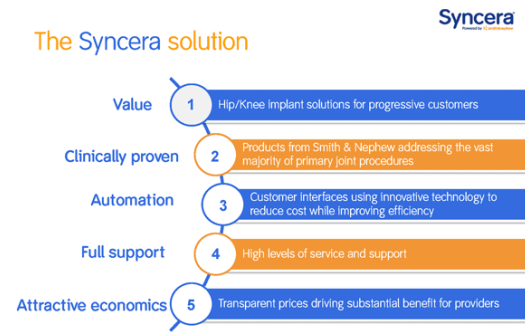
has nevertheless driven the medical device manufacturers to come up with new strategies and product solutions to benefit from the growing healthcare demand. The strategies vary from the re-introduction of old products (all the R&D has been earned back making these products cheap to produce) which are no longer relevant in the Western world, but offer a great benefit to the citizens of other affluent countries. Companies like Varian and Elekta have developed dedicated low cost linear accelerators in radiation therapy, produced in China, to end up with sub \$1mn solutions compared to the standard price of a more sophisticated product in the western world of \$2-2.5mn.

Price Segments: we would argue that the growing inequality in patient income is likely to continue to drive a more diversified product approach of low to high-end product solutions. The degree of product segmentation will depend on whether the medical device is reimbursed by governments, health insurers or whether the device/procedure is self pay. In most developed markets such as Germany, Japan and the United States, we do not see any dramatic changes, although government /insurance company focus to contain healthcare costs is likely to cause companies to focus R&D on medical devices that can reduce overall healthcare costs. In countries or in end-markets where there is a high degree of self-pay, such as many emerging markets, we believe medical device companies will need to broaden their product offerings to products which are simpler and cheaper to produce, that make them more affordable for self payers or emerging government healthcare systems. As a result, we see it as likely that the product portfolio of medical device companies will expand from high-end to increasingly mid and low-end products.

A good example has been the hearing aid industry, which in the late 1990s and early 2000's was focused on high-end products. However with the average hearing aid price readily increasing from \$1,300 per unit in the United States to \$2,500 in 2014/15, the product has become increasingly a product solution for the higher income earners (especially since most hearing impaired people need to buy two for a total cost of ~\$5,000). As a result, we have seen emergence of potentially disruptive business models / technology, which are trying lower the price, including personal sound amplification devices (PSAPs) which is more of a consumer electronics solution to hearing loss vs. the traditional device of a hearing aid. Assuming inequality of income and wealth persists and widens further over the longer term (next 10-20 years), there may be potential for a further push for cost savings in devices whether from genericized versions or a cost segmentation marketing model. The recent Cardinal Health acquisition of Johnson & Johnson's Cordis unit points to potential for genericized devices to make a more meaningful present in the market.

Potential Benefits & Challenges: given that in many developed markets, the government provides reimbursement, we do not expect on average many beneficiaries within the sector from widening inequalities over the next 20 years. Most medical device companies have been combining R&D with healthcare economics to help reduce overall healthcare costs through product innovation. For medical devices which are not reimbursed or only have a little bit of reimbursement, such as cosmetics, hearing aids, dentistry and eye glasses, the situation may be a little bit more complex. But effectively we believe companies have the ability to adapt

Exhibit 86: Smith & Nephew: Syncera lower cost solution for hips and knees



Source: SMITH & NEPHEW

Source: Smith & Nephew, Morgan Stanley

Exhibit 87: Elekta: Compaq entry level linac for China

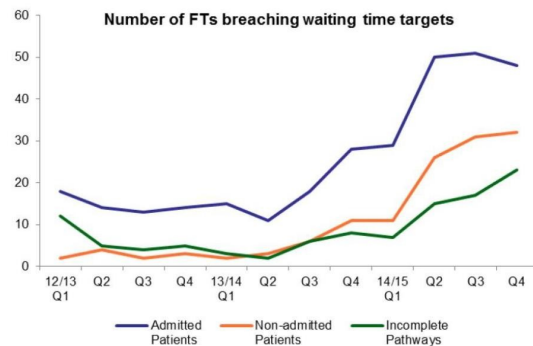


Source: Elekta, Morgan Stanley

over time and expand their product portfolio to cater for the demand from the wealthy (high-end solutions), all the way down to the lower income earners (value

based solutions). One area of medical devices that could be a clear **winner** is the cosmetic medical device industry, where the desire to look younger, provides an incentive to spend surplus disposable income on areas such as better looking teeth, smoother looking skin, hair transplants, or breast implants. Another area that could be a winner are private hospital operators, whereby the wealthy take advantage of getting around waiting lists, that are typically associated with government reimbursed systems. Provided in the exhibit below is an overview of the number of financial trusts (which run NHS hospitals) in breach of their waiting time targets, showing the increasing waiting lists and challenges to the service.

Exhibit 88: Trusts are increasingly breaching waiting times for acute therapies



Source: Monitor, Morgan Stanley

A potential **loser**, is the hearing aid industry with participants such as Sonova and William Demant, where the business model and margin structure are highly vulnerable to changes in government regulations, which could provide easier entry to the consumer electronics industry to supply low cost hearing aids, with a much lower profit margin.

Greatest Risk From Widening Equalities: while a large proportion of healthcare is paid for by governments in the developed world, there has been an increasing trend for patients to make a co-payment for their medical procedure; this is a function of healthcare systems trying to deal with rising healthcare costs. This has been especially the case in the United States, when it comes to commercially insured patients, but we are also seeing this in other geographies. Over time we see a risk that rising inequality will make it more challenging for lower income earners to afford rising co-pays, which will slow the demand for medical devices.

US Healthcare

In the United States, we have seen a trend toward increased patient responsibility and cost sharing - a trend we believe will continue going forward. For example, a Kaiser Family Foundation study determined that while premiums increased 61% from 2005 to 2015, the patient contribution portion increased 83% over the same period. While the Affordable Care Act expanded insurance coverage to every American, it has not yet solved the issue of access. As highlighted in the exhibit below, lower income patients are more likely to choose a Bronze or Silver plan due to a lower monthly premium. This puts pressure on utilization of the overall healthcare system as higher deductibles require mostly out of pocket payments when patients need care, which lower income families may be unable to pay. Over time, we believe this could benefit more affordable venues of care, such as the CVS Minute Clinic.

Exhibit 89: Comparison of Healthcare Exchange Expenses Across Plans and 2 States

New York	Platinum	Gold	Silver	Bronze
Monthly Premium	\$592	\$496	\$408	\$324
Deductible	\$0	\$600	\$2,000	\$3,500
Out of Pocket Max	\$2,000	\$4,000	\$5,500	\$6,850

Texas	Platinum	Gold	Silver	Bronze
Monthly Premium	\$489	\$275	\$231	\$178
Deductible	\$0	\$500	\$1,500	\$4,000
Out of Pocket Max	\$1,500	\$5,000	\$6,850	\$6,850

Source: Healthcare.gov

Generic industry leader **Teva** is well positioned to address the inequality gap by capitalizing on growing

demand for low-cost generic pharmaceuticals. Highly innovative pharmaceutical companies can also be winners, as long as governments do not aggressively squeeze pricing. US innovators **AbbVie, Bristol Myers, Eli Lilly, and Merck** are developing transformational new medications for hepatitis-C, oncology, diabetes, and central nervous system disorders. Although most innovative pipeline products will be high cost, they can help to lower overall healthcare industry costs and extend patient lives. A company which is exposed to potential pressure from inequality is **Valeant**, since the company has employed a business strategy to maximize US pricing to the greatest extent possible and it invests little in innovation to lower future health system costs. Similar to US Innovative Pharmaceuticals, US Biotechnology provides a similar value proposition. Key innovators including **Alexion, Amgen, Biogen, Celgene, Gilead, Regeneron and Vertex** are also developing key new treatments for Hepatitis C, Hepatitis B, oncology, Cystic Fibrosis, osteoporosis and cardiovascular disease. While these treatments will also have high costs, if used appropriately, they can lower overall healthcare costs and extend patient lives. Within the US specialty pharmacy channel, the only public, independent US specialty pharmacy is **Diplomat**, which offers exposure to innovative medicines requiring a high touch distribution model. **CVS/WBA** may also benefit from increasing inequality, as their stand-alone walk-in clinics provide access to patients searching for affordable primary care.

Managed Care - One of the key provisions of the Affordable Care Act was to expand Medicaid, the jointly state and federal financed program to provide healthcare to low-income individuals. Specifically, the ACA increased Medicaid coverage to individuals that had annual incomes up to 138% of the Federal Poverty Level (FPL) or made ~\$16,000 a year in 2015. While a 2012 US Supreme Court ruling gave states a choice about whether they would expand Medicaid, the majority of states (57% or 29 states + DC) decided to expand their programs. As of March 2015, ~7M additional individuals in the United States had Medicaid coverage due to the coverage expansions. We believe Medicaid enrollment will continue to grow given 1) the high degree of churn among this population and 2) the possibility more states could expand Medicaid. As such, we think the inequality gap has benefited managed care companies that specifically serve Medicaid populations. Two companies we would highlight are Centene (**CNC**) and Molina (**MOH**), which almost exclusively provide health benefits to Medicaid beneficiaries. Notably, CNC had annual returns of 76% in 2014 and Molina returns of 54% last year. Additionally, the stocks are up 20% on average YTD.

As mentioned in the above sections, the inequality gap is driving an increase in consumerism, which is particularly evident in the health insurance marketplace. We believe companies best positioned for this movement would be those with the most robust consumer offerings. In this environment, we would highlight Aetna (**AET**) and UnitedHealth (**UNH**) for their consumer-oriented products. For example, UnitedHealth's Optum business has a number of key tools including its Health Advantage mobile app for HSAs and Rally, its digital consumer engagement platform. Similarly, Aetna's Healthagen division advances its provider collaboration and consumer empowerment strategy.

Within Medical Devices, the overall impact of inequality has been relatively insignificant. Despite widening inequality, the advent of the ACA has coincided with an increase in procedure volumes and utilization in the US. European device end markets are largely dominated by national healthcare systems that also will likely see limited impact from inequality gaps. Assuming inequality of income and wealth persists and widens further over the longer term (next 10-20 years), there may be potential for a further push for cost savings in devices whether from genericized versions or a cost segmentation marketing model. The recent Cardinal Health acquisition of Johnson & Johnson's Cordis unit points to potential for genericized devices to make a more meaningful presence in the market but we are cautious, absent more evidence supporting such a trend. In a similar vein, Smith & Nephew launched Syncera, a new discounted, hospital focused sales model, where the company is offering its Genesis II Knee and combination Synergy hip stem and reflection cap with discounts of around one third of the price in exchange for a lower touch and more basic technical support. While still early, we believe that uptake has been fairly limited, and the full potential of a cost conscious segmentation of the market remains to be seen. Overall, we see the inequality gap as likely having more second to third order effects on the medical device industry with any impact likely many years away from making a meaningful or quantifiable impact within various end markets and company business models.

Luxury: Providing entry for the 'aspirational' consumer

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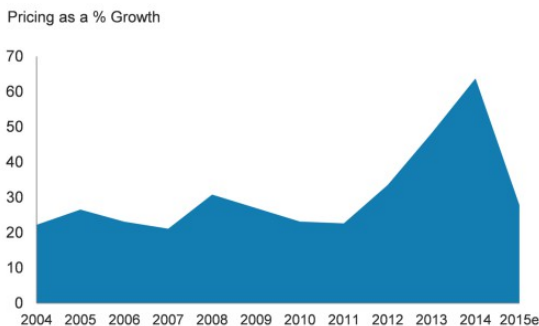
Bottom Line

Luxury brands sell goods to a small minority of the world's population. We do not see a risk specifically to the luxury brands from widening inequality trends - providing the high-net worth population grows along with the rising pool of aspirational consumers from Asia, these companies are well positioned to benefit. We expect brands will continue to take advantage of growth at the entry level ('aspirational') category given the appetite for luxury from the Chinese spending globally. Overall, we think Richemont and LVMH are best positioned.

Luxury and Inequality: The luxury brands by their very nature sell goods to a small minority of the world's population. Growing consumer wealth along with the rise of the 'aspirational' consumer have been clear positives:

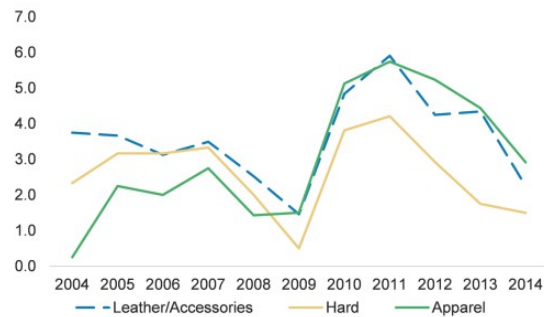
- Pricing:** On our estimates, over the 10-year period 2004-14 pricing accounted for ~25% of annual growth across the luxury peers. The brands benefited from rising volumes along with strong pricing power. These goods - watches, jewellery, leather goods and accessories - are characterised by high barriers to entry and the brands are best-in-class marketers - creating a sense of scarcity value. We think the leather/accessories and apparel brands have benefited most.

Exhibit 90: As a proportion of growth, pricing reached new highs in 2014, we estimate



Source: Morgan Stanley Research estimates. Note: 2009 is average of 2008 and 2010 (2009 itself is not meaningful given volume contraction).

Exhibit 91: Leather/Accessories segment has benefited most from pricing, in our view

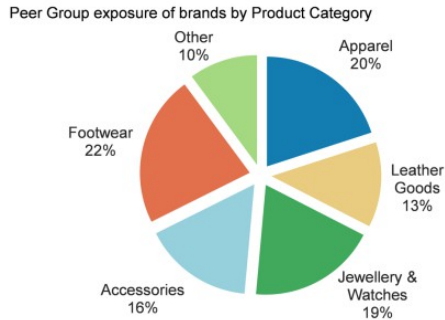


Source: Morgan Stanley Research estimates

- Premiumisation:** In addition to pricing power, the luxury brands have introduced more goods at the high end - fuelled by rising wealth and consumers willingness to use luxury goods as a display of net worth and/or success. The latter point is particularly important for Asian consumers.
- Introduction of more entry price points for the 'aspirational' consumer:** This is not for the

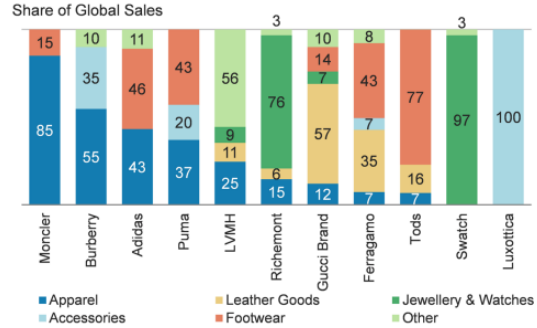
'low net worth' individual, but the aspirational consumer who is willing to prioritise spending on high end brands. The purchase of a handbag from Louis Vuitton may be out of the question, but a scarf or pair of sunglasses may be affordable. Many brands have moved beyond their core offering and widened the product base to attract a broader demographic. As growth has slowed in Western Europe, this has been important to volumes.

Exhibit 92: On average, leather/accessories represent ~30% of luxury sales



Source: Company Data, Morgan Stanley Research

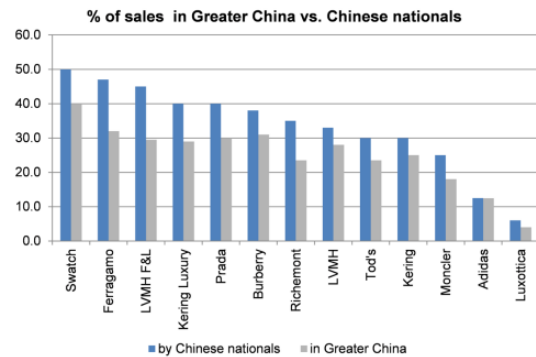
Exhibit 93: Peer group split by product segment - many brands have moved beyond core offering



Source: Company Data; Morgan Stanley Research

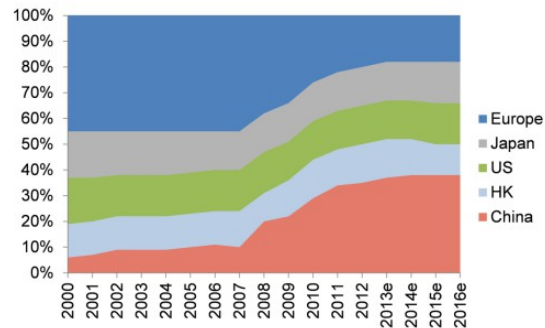
- Growth by nationality continues to evolve:** Twenty years ago, the largest consumer group of luxury goods were the Western European high net worth individuals. Whilst the luxury companies do not disclose revenues by nationality (only by geography) we estimate Western Europeans now account for nearer 20% of sales for the global brands (down from 40% 10 years ago), this is adjusted for tourism related sales.

Exhibit 94: Peer groups have on average significant exposure to the Chinese national globally



Source: Company Data; Morgan Stanley Research estimates

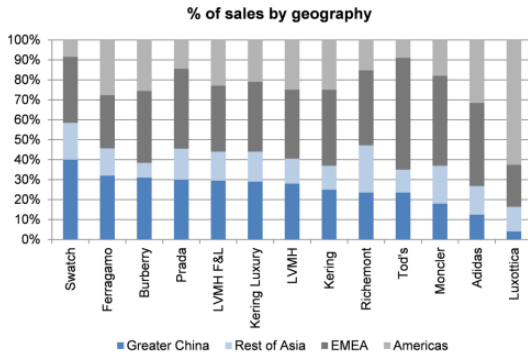
Exhibit 95: Chinese spend is a growing demand driver of luxury - estimated spend by nationality



Source: Morgan Stanley Research estimates

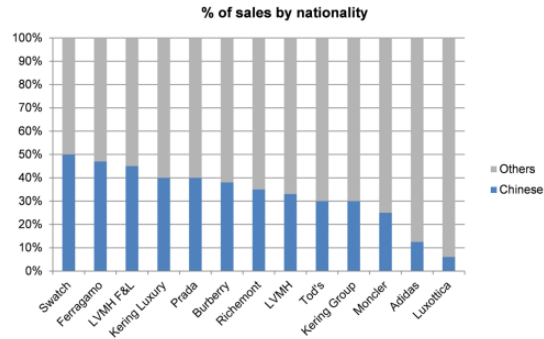
- The rise of the Asian consumer has had an impact on pricing mix...** As shown, the rise of the Asian consumer (Greater China) has had a significant impact upon the luxury companies. We estimate that ~50% of sales in Western Europe are made to tourists, with the largest exposure being the Chinese. At the high-net worth level, companies have sought to offer more premium priced goods, some being limited collections (particularly within watches/jewellery).
- ...and also product mix opportunities.** We continue to believe aspirational consumers or first time luxury buyers in Asia will underpin our luxury growth forecasts. More 'entry level' accessories, e.g. small leather goods, gift items etc., have boosted volumes.

Exhibit 96: Greater China accounts for ~30% sales for the luxury peers...



Excludes Adidas and Luxottica. Source: Company Data; Morgan Stanley Research estimates

Exhibit 97: ...But this rises when accounting for Chinese spending in a global context*



*Note: Mainland China accounts for ~12% sales for the luxury peers, but the Chinese consumers account for nearer 35%, we estimate. Source: Company Data; Morgan Stanley Research estimates

Beneficiaries of this? Rising consumer wealth and the number of high-net worth individuals is positive for all the luxury brands. Brands most exposed to the more premium offering with continued pricing power would be Richemont (watches and jewellery) and also LVMH (fashion, leather goods, premium beverages).

Greatest Risks? We do not see a risk specifically to the luxury brands from widening inequality trends - providing the high-net worth population grows along with the rising pool of aspirational consumers from Asia, these companies are well positioned to benefit. The greater risk we see is the shift in demographic - consumers of luxury goods are becoming younger. This may encourage a change in spending behaviour - eg more traditional luxury goods will have greater competition for wallet share from other areas within consumer durables (high end technology for example). This could depress pricing power going forward and erode regional price differentials (central to our base case and we factor in negative price mix across the peers 2015-17e).

Retail: Expanding value segment with expanding inequality

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Bottom Line

We expect widening inequalities to continue reshaping the global retail landscape as they should enable the emergence of a more prominent Value segment and lead traditional retailers to review their value propositions and overall strategies. In this context, we expect the value operators in Europe and the off-price retailers in the US as well as retailers operating at the highest end of the price scale with a clear value proposition, strong brand recognition and competitive sourcing and logistic capabilities to benefit from the trend.

Widening inequalities combined with the increasing price transparency provided by the internet have started and should continue to reshape the retail landscape in developed countries in the years to come. We see mostly three direct impacts on the retail sector both in Europe and in the US:

1) The increasing segmentation of the product offering with a renewed focus on entry price lines for mass retailers. The rise of inequalities in developed countries such as the UK has led to the increase in the price elasticity of the majority of consumers pushing mass retailers to further invest in their price propositions notably through the expansion of their entry point ranges. For example, we have observed the expansion of the entry price 'basic' range of fast fashion retailer H&M while it continued initiatives at the other end of the price spectrum such as the H&M conscious collections and the H&M collaborations with fashion designers. Similarly over the last couple of years, Inditex relaunched its Lefties format initially used as an outlet for unsold Zara items in Spain and Portugal and turned it into a low-cost fast fashion retailer available in the Iberian peninsula, Russia and online. Finally, UK bikes retailer Halfords announced further investment in its value proposition in November 2015 as 45% of its customers check prices online and this number should continue increasing.

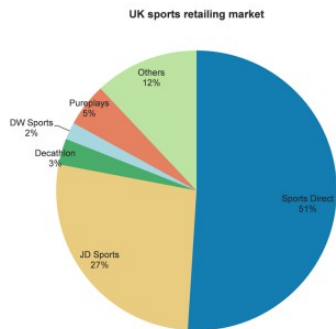
2) The sharp expansion of the value retail segment. The UK is becoming increasingly inegalitarian which arguably contributed significantly to the rise of the value segment in the retail industry over the past decade which caught many traditional retailers by surprise. In the clothing industry, with a 14.3% share, Primark now has the largest volume share of the UK market well ahead of ASDA at 10.8%, Marks & Spencer at 10.3%, Tesco 6.3% and Next at 6.0%. Similarly in Spain, Primark enjoys the largest volume share at 8.8% ahead of El Corte Ingles at 5.7%, Decathlon at 4.7% and Zara at 3.1%. In the general merchandise segment, the number of value retailers and hard discounters in the UK has almost quadrupled between 2001 and 2014 reflecting the increasing appeal of the segment to consumers.

In the US, since the Great Recession consumers have shifted from consumption focused spending to value driven spending. Retailers deeply discounted covetable brands in the 2008-2009 recession, changing consumers perception of value. The emergence of the "Recessionista" made bargain shopping a badge of pride suggesting a combination of fashionable and savvy shopper. The off-price retailers (TJX, ROST, BURL) continue to take share from the mid-tier department stores (KSS, M, JCP) and consistently deliver positive low to mid single digit same store sales, whereas the mid-tier department stores' are flat to negative at best. Over time we expect rising inequality to trigger greater market polarization, benefitting lower priced retailers at the expense of the broader 'middle' segment.

In the grocery sector, the discount channel in general has been gaining market share in almost every single

national market over the past decade. Hard discounters (small store size, limited assortment of mostly private label items, etc.) such as Aldi and Lidl have extended their presence in almost every single European market: they now have a combined market share in the UK, the Netherlands or Ireland of respectively 10%, 16% and 20%. Additionally, a number of national 'soft discounters' have also thrived across Europe over the past 10 to 20 years. In Belgium, Colruyt now has a market share of 28% (in addition to Aldi and Lidl's 16%), in Spain Mercadona's market share stands at 22%, etc. These discounters, in our view have gained market share due to a number of factor (shift away from 'big box' stores to more convenient formats, increase in cost of unqualified labor partially driven by higher taxation of labor, etc.) including increasing inequality. We do not expect their expansion to moderate in the short to medium term.

Exhibit 98: Value retailer Sports Direct has a prominent position in the UK sports retailing market

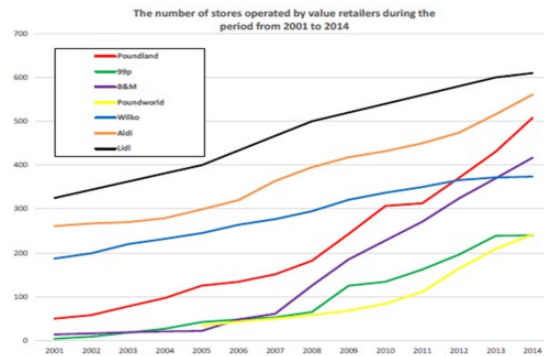


Source: Mintel

3) Structural pressures in some categories in inegalitarian societies. One of the most striking illustrations of the impact of the increasing inequalities in the UK is the structural decline of the DIY market. The UK DIY market has been in decline since 2005 while merchants targeting the 'professional' end of the market (Travis Perkins, Howdens, etc) have generally performed well in recent years. We believe that the main problem that DIY specialists such as B&Q, Homebase and Wickes face is that, when it comes to domestic repairs and maintenance, the UK is moving from a 'Do It Yourself' culture to one of 'Do It For Me'. The UK average house cost £286,000 while national income average £26,500 reflecting the fact that owning a property is becoming increasingly challenging if not impossible for the majority. Moreover, many house owners either do not have the skills or the time for home improvement and therefore use service providers, explaining the relatively better performance of home improvement specialist targeting professional vs. consumer focused operators such as B&Q. See our report, *Kingfisher: Why is B&Q struggling?* February 14, 2013.

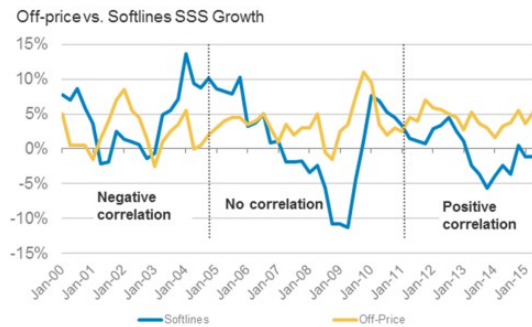
Most favourably/unfavourably positioned? We expect the value segment to continue expanding as inequalities increase in developed countries creating further deflationary pressure on most categories and expect the mid- range retailers and the retailers with the weakest perceived value proposition to suffer the sharpest market share losses and margin contraction as a consequence. In contrast, we expect retailers operating at the highest end of the price scale with a clear value proposition, strong brand recognition and competitive sourcing and logistic capabilities, such as Zara, to benefit from the widening inequalities over the next decades. In the US, we think the off-price retailers (TJX, ROST, BURL) are best positioned. According to Euromonitor, off-price currently represents ~11% of the US apparel market but we think it could potentially reach ~15% over the next 10 years.

Exhibit 99: The number of value general merchandise retailers and hard discounters in the UK has almost quadrupled since 2011



Source: Competition & Markets Authority

Exhibit 100: US Off-Price same store sales are now positively correlated with Softlines'



Source: Company data, Morgan Stanley Research

Technology: Great equalizer until now, but polarization a possibility

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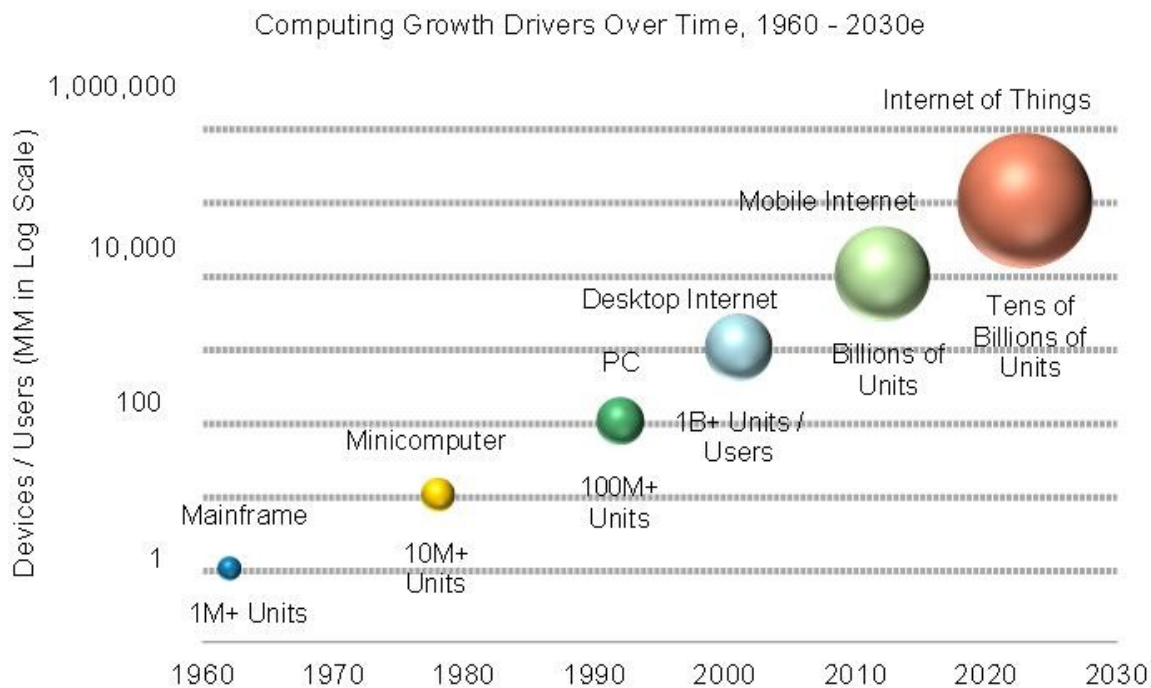
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Bottom Line

Mobile devices have provided users with access to communication, the mobile internet and even encouraged financial inclusion in some countries. We estimate that 2.5B people in the world own smartphones, compared to about 1.5 B for PCs. Even so, the companies that offer cheaper devices, ad-based content and bulk volume eCommerce should do better in the long term.

Mobile devices have actually improved equality. We have observed that every technology cycle is roughly 10x bigger than the previous one, as infrastructure and ecosystems improve over time while Moore's Law drives cost down. We estimate over 2.5B people in the world own smartphones, compared to about 1.5B for PCs. While some users may have a better experience since they can afford better devices (hardware, software) and services (wireless networks), mobile devices in general have given more people than ever an opportunity to connect to the Internet, which many countries are starting to recognize as a basic utility, like electricity. And the mobile Internet has given many equality, at least in terms of access to information and ability to communicate, and it has also increased efficiency and improved the quality of users' lives in many different ways.

Exhibit 101: Each Computing Cycle is 10x Bigger



Source: Morgan Stanley Research

The fast pace of technology development allows emerging markets to leapfrog legacy devices and services, and close the gap vs. developed markets. Emerging markets are arguably surpassing developed markets in many ways. The smartphone installed base today is already larger than the PC base *and* still growing

at a faster rate, as many emerging market users are buying smartphones as their first computing device, and skipping desktops and notebooks. And these new users are often quicker to adopt new services and business models.

China is a great example of emerging markets embracing new technologies. It is already the world's largest smartphone market with 424M shipments in 2015, or nearly 30% of global shipments. Alibaba will generate US\$452B of gross merchandise volume (GMV) in 2015, mostly in China, more than double Amazon at US\$204B, a large portion of which is in the US or other developed markets. Apple CEO Tim Cook believes China will surpass the US as the company's largest market. He cited a McKinsey study that said China's middle class had 50M people in 2010 but will grow 10x by 2020.

What happens if inequality of income and wealth persists and widens further over the next 20 years?

While technology should continue to improve the lives of all users, a bifurcation of the user base by income and wealth could significantly change business models. Technology companies tend to charge a premium for better experience. If the portion of the population that is willing to pay for this premium does not grow, companies will either have to change their business models or likely face a smaller addressable market than they thought.

- **Premium vs. cheap devices:** Android smartphone average selling prices have been increasing Y/Y in China in recent quarters as users are willing to pay more for a better experience. Wealth bifurcation could mean users are more attracted to cheaper prices than better devices. It could also mean a smaller portion of the population will own multiple devices. A high income user is more likely to see the appeal of owning PCs, tablets, smartphones and wearables each for different use cases, while the rest of the market "make do" with just a smartphone, which is "good enough" for most use cases even if it is not always optimal.
- **Subscriptions vs. advertisement-based services:** Internet content providers generally monetize through subscriptions and/or advertisements. Subscriptions tend to appeal to users who value their time and experience. However, if there are too many subscription services and users have "subscription fatigue" and companies realize the addressable market is more limited than they thought, we may see a shift to more hybrid or advertisement-based models.
- **Speed vs. free delivery:** Established eCommerce companies, like Alibaba and Amazon, and many startups are building out the technology and/or infrastructure to provide fast delivery. For example, Amazon Fresh offers perishable food deliveries, and several startups including Postmates and Doordash offer to pick up and deliver cooked food from restaurants. However, our past surveys have shown that users are cost conscious about shipping and handling expenses, and startups have picked up on that, for example Jet and Boxed. If income inequality widens, fewer people may be willing to pay a premium for speed but rather choose a Costco-like buy-in-bulk model, or just go to a wholesale store in person.

Are there any winners from this? Technology is a great equalizer and over time it should and has improve the lives of all users. But if there is a bifurcation, those that offer cheaper devices, ad-based content, and bulk or volume eCommerce should do better. But this will be a long term trend, so more importantly, it is those that can adapt that will win.

Transport: Mobility and segmentation provide flexibility to adapt

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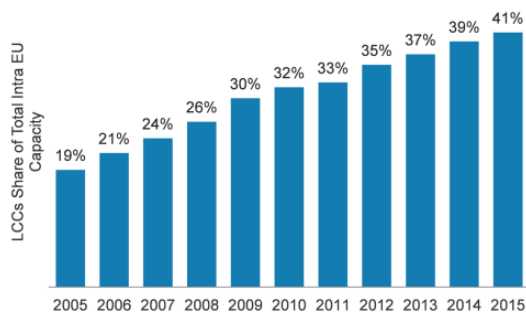
Bottom Line

As airline assets are moveable and relatively adaptable (i.e. they can be refurbished), there is opportunity for the airline business models, primarily LCCs, to target both the low income and high income segments with different product offerings. The LCCs with the lowest relative cost base should be able to target the price sensitive end of the market, while hub carriers with targeted investment in premium fleet offers can benefit from growth in the premium customer segments.

European Airlines

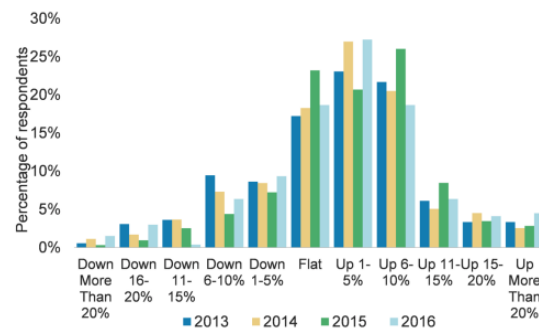
There have been numerous changes in the European airline industry structure over the past two decades, the main element of which has been the major expansion of the low cost carrier (LCC) industry. In the past decade alone, the market share of industry capacity within intra-EU held by the LCCs has increased from 18% to 40%. However, exclusive of the financial crisis in 2008-2009 we have also seen reasonably solid growth in the premium travel segment (first and business class) particularly out of major hub airport locations.

Exhibit 102: LCC Airline Share of European Capacity 2005-2015



Source: OAG

Exhibit 103: Growth in Corporate Travel Budgets 2013-2016 remains net positive



Source: Morgan Stanley Alphawise Survey 2016

In a similar fashion to the Leisure segment, we observe many airlines are segmenting into high end and low end offers to their customer bases. In the last decade, we have seen the two major LCCs, RYA and EZJ, commence offering a business traveller product, where seat selections and schedule changes are included in the base fares. EZJ also recently announced it would begin offering a frequent traveller reward scheme, targeted at this end of the customer base. At the other end of the spectrum, the legacy airlines have invested equally in their high end product offerings (Lufthansa for example has spent ~€300m in premium class upgrades in the past 3-4 years) as well as investing in the expansions of their low end economy brands (germanwings and Eurowings at Lufthansa, Transavia at Air France KLM and vueling within the IAG group).

Exhibit 104: Lufthansa premium offering - investments have yielded €300m.p.a in last 3 years



¹ on selected routes

Source: Company data

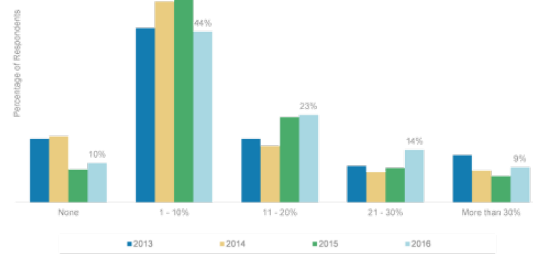
What happens if inequality of income and wealth persists and widens further over the next 20 years? We believe it will only exacerbate the above trends for European airlines.

- **Airline assets are mobile and relatively adaptable (can be refurbished) - so the airlines can theoretically respond to changes in the demand profiles both in developed and emerging markets.** The weighting of exposures for the European airlines remain largely weighted to developed markets - either western EU or North America. Growing wealth discrepancies in these markets would only see more of the split investments in high end and mass market product offerings, in our view. While emerging market passenger growth is typically faster growing, for now, these are quite price sensitive markets and therefore favour airlines usually with lower cost bases. This might mean that legacy airline groups in Europe with relatively high labour and infrastructure costs may be affected more by growing wealth inequality than more nimble players.
- **Premium class investment and differentiation will only be more important,** especially as Middle Eastern and Asian carriers continue to invest heavily in premium offerings to attract high wealth and corporate business.
- **Competitive challenges, regulation and oil/FX may impact outcomes for the European airlines to the inequality themes.** As European airlines are heavily regulated and are also materially exposed to USD and oil price swings, the ability to adapt to changes in consumer wealth may be impacted. For example, European airlines are subject to differential carbon emissions regulations than global peers. In addition, many major airport hub in Europe are privately owned and therefore priced for profits to their owners; this is not the case for many other global regions. Finally, major changes in the value of the EUR, may decrease the competitiveness of the European airlines on the global stage owing to significant items of opex being denominated in USD.

Are there any potential beneficiaries from this? In the European airline sector, we believe RYA and EZJ would have the greatest flexibility to capitalise on divergent wealth trends on the intra-EU market. The LCCs could continue to take share in the discount/economy end of the market by utilising their lower cost bases to offer more attractive pricing to the lower-income brackets. On the premium segment, the LCCs' more flexible

offering could also grow further with corporates increasing their use of LCCs in the travel budgeting (exhibit 105). Conversely, legacy airlines such as AF-KLM and Lufthansa have a less clear path to capitalising on changing wealth patterns, in our view. While they have a spectrum of brands to potentially tap both the high and low income markets, their relatively complex cost structures and less flexible balance sheets make it less clear how they may be able to position themselves for changing equality dynamics.

Exhibit 105: Use of LCCs as % of total corporate budgets has been steadily increasing



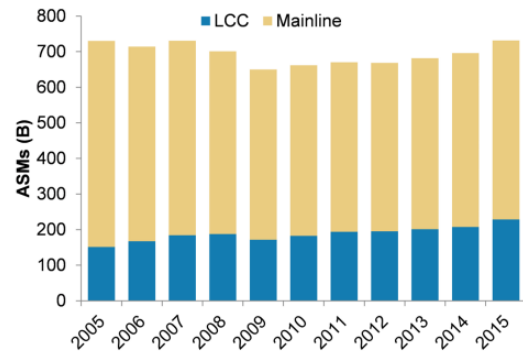
Source: Morgan Stanley Alphawise Survey 2016

US Airlines

As the income inequality gap widens and drives further divergence within consumers, those carriers that cater to the more extreme ends of the demand curve are positioned best. We highlight LCCs and ULCCs in particular that are able to serve consumers with lower price points given slimmer cost structures and legacy carriers with premium offerings for consumers with higher price points.

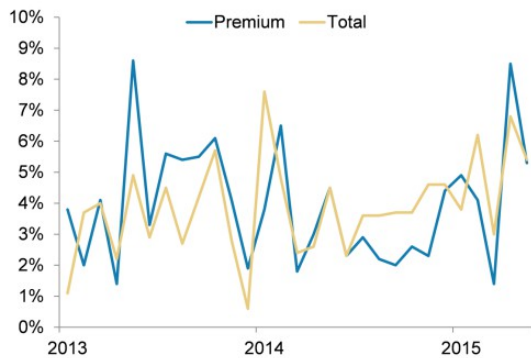
Growing LCC presence demonstrates the impact of an evolving income inequality gap. Over the last 10 years, low cost carriers have grown US domestic market share from ~21% in 2005 to ~31% in 2015. The continued market penetration of LCCs and ULCCs is partially a function of robust demand at the lower end of the demand curve. LCCs and ULCCs have been successful at serving these price-sensitive consumers because of their cost structures that are structurally slimmer than mainline peers with more mature labor relations amongst other factors. We note, however, that lower fuel somewhat mutes this advantage over the near-term as mainline carriers are able to compete profitably at increasingly lower prices.

Exhibit 106: LCC US Domestic Market Share has Expanded Meaningfully Over the Last 10 Years



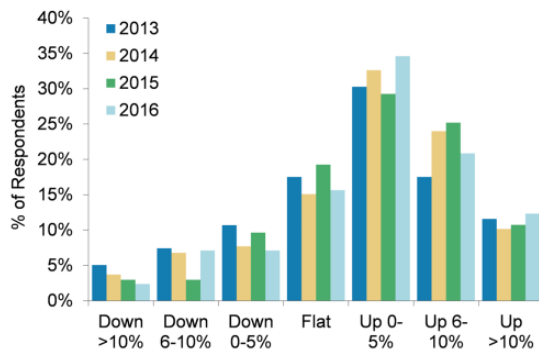
Source: OAG, Morgan Stanley Research

Exhibit 107: Premium Trends Keeping Pace with Total Traffic Exemplifying Demand for Offerings



Source: IATA Premium Traffic, Morgan Stanley Research

Exhibit 108: 68% Expect Corporate Bookings to Grow in 2016



Source: Alphawise, Morgan Stanley Research. Question: By what percentage do you expect your firm's airline bookings (passenger volume) to change in 2016 (vs. 2015)?

All the while, premium demand is keeping pace. As income inequality drives the price-sensitive consumer segment higher, it also supports offerings on the other end of the spectrum. In fact, premium traffic growth has

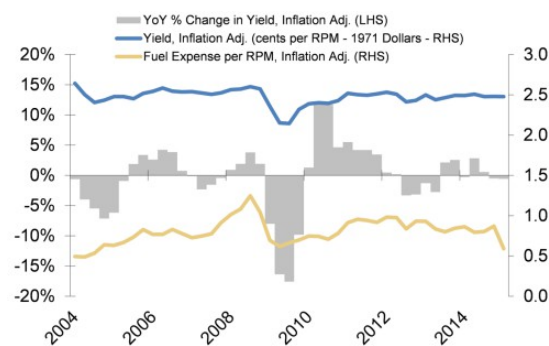
largely kept pace with total traffic growth on a global basis per IATA . While volumes have remained robust, legacy carriers have highlighted soft close-in yields to-date which serve as a good proxy for premium pricing. The soft yields are likely driven by elevated supply growth observed in the market this year as well as lower fuel and the resulting behavioral dynamics. That being said, our recent corporate travel survey suggests that forward volume expectations are strong though airfares are more stable. To the extent that the income inequality gap continues to widen, we expect premium traffic growth to outperform total traffic growth as consumers increasingly target more upscale offerings and corporate volumes stay strong.

What happens if inequality of income and wealth persists and widens further over the next 20 years? The aforementioned divergence only becomes more extreme.

- **The mobility of aircraft as fixed assets grants flexibility to airlines to appropriately address changes in demand.** As income disparity widens and consumers become increasingly differentiated on price sensitivity, airlines will have to respond by adjusting fares or adjusting exposures. Fortunately, aircraft are easily transportable assets and carriers that are experiencing unfavorable trends resulting from the inequality gap can transfer these assets to geographies that are more favorable.
- **Unbundling efforts and fare class segmentation will become even more important.** US airlines have taken active steps towards providing the best package for all consumers regardless of preference by unbundling offerings and segmenting fare classes. As an example, Spirit Airlines offers bare fares with no other ancillary products included so as to cater to passengers that are extremely price conscious while avoiding leaving money on the table for those interested in ancillary offerings. These efforts are pervasive across our coverage as ancillaries become increasingly unbundled to provide customers with choice. In addition to unbundling, airlines have segmented fares into different classes to cater to different legs of the demand curve on the same aircraft. As income inequality widens, both unbundling and fare class segmentation will be crucial for airlines attempting to serve different consumers.
- **Regulatory oversight may be emphasized to a greater extent in an attempt to protect consumers.** As affording travel becomes more difficult for lower income customers, we expect regulatory bodies will become even more protective of keeping fares affordable. This may, to some extent, mute the impact of widening income inequality on the industry though share shift will likely already be underway.

Who are most favourably positioned? Legacies and the ULCCs. We would expect both carriers that serve both the higher and lower end of the demand curve to be well-positioned for growth in income inequality while higher value leisure carriers may lose out. First, ULCCs (ALGT and SAVE) offering the lowest fares in the marketplace are likely to be chosen even more as customers become more price sensitive. And on a longer-term time horizon, the ULCC should see relatively less competition from mainline carriers as fuel rises and lower price levels become less profitable. Second, we believe legacy carriers (AAL, DAL, and UAL) offering premium products will stand to benefit as close-in yields (which have been soft of late) begin to firm with the added demand tailwind from higher income customers.

Exhibit 109: Stable Yields Suggest Widening Inequality Gap is Neutral for Group with Various Winners and Losers



Source: A4A Cost Index Report, Morgan Stanley Research

Leisure: Bifurcation with a bent towards the high end

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Bottom Line

How to navigate the inequality gap? High-end operators such as Starwood, Hyatt, and Shangri-La should be best positioned if the income gap continues to widen.

The large publicly listed European Travel and Leisure companies operate principally in the mass market segment, be they hotel operators, restaurant chains, tour operators, cruise lines, gambling operators, or theme park operators. Given luxury spend in these industries is a relatively small percentage of total spend, and the listed companies dominate the contemporary segments, it is difficult to see signs of wealth inequality in their figures. **However, the US lodging industry has both high and low-end operators, and there are some signs of what growing wealth might have caused in these European industries.**

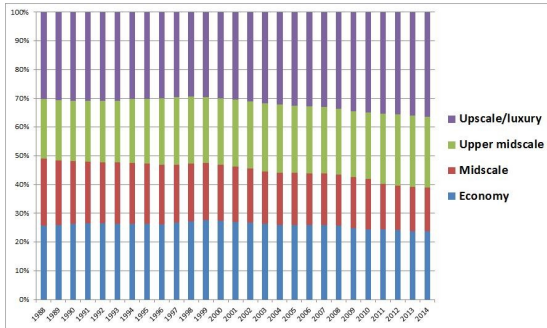
- **Tour operators in Europe have been reducing their exposure to economy and self-catering holidays, and expanding more into 4 star and all-inclusive hotels.** As a result, volumes have been flat for many years, but average ticket prices have increased sharply. For example, TUI's average selling prices have increased by nearly 50% since 2008, and Thomas Cook's by nearly 25%. Operators' remixing of their revenue base is partly a reaction to defend themselves against the impact of low cost airlines and the internet which allow customers to package their own holidays. But it is also partly due to the squeezed middle classes, and a desire to increase exposure to upper socio-demographic groups. The downside is that this has meant significant restructuring, which has come at some cost to the companies through ongoing cash exceptional costs as they change their business mix and reduce legacy staff and technology costs.
- **Foodservice operators impacted by more homeworking.** The economic downturn and resulting unemployment has contributed to more people switching to being self-employed, working for smaller companies, and setting up flexible working from home arrangements. Given foodservice operators need large captive audience to cover their fixed overhead, this has been the 'wrong' sort of employment. Remote working is growing, and aided by improved technology, more flexible employment laws, and a shift in employers' mentality. From the employers' perspective it is cheaper to outsource jobs to workers who offer the same talent and productivity as local workers but at a much lower cost, they end up saving big sums on office space, facilities, and overheads, and it allows employers to retain talent by offering on-site employees the flexibility to work from home once in a while. From the employees' perspective, they look at remote working life-styles as a great way to achieve work-life balance. Data is scant, but WorldatWork estimated that 16m employees worked at home at least one day a month in 2010, a number that increased 62% from 2005, and Global Workplace Analytics extrapolate this to get to 25m who currently telecommute occasionally.
- **High-end hotels have slowly taken over the US market.** Over the last 25 years, upscale/luxury hotel rooms have increased from 30% of US branded hotel rooms to 36%,

while the midscale segment has fallen from 23% to 15%, and the economy segment remained relatively constant at 26-27% until 2005. We viewed this trend to be similar to other consumer-facing sectors, and the airline industry, with polarisation into luxury and economy serving a changing population. Over the more recent past, the midscale and economy segments have both become less attractive to developers looking to appeal to a slightly richer audience with slightly nicer product (at relatively similar development costs). As a result, both the midscale and economy segments have seen their share of total branded hotel rooms drop from 20% to 15% and 27% to 24% from 2000-2014, respectively. This has been the result of revenue per available room rising by a 5.3% CAGR in the luxury segment over the past 25 year, but only 2.3% in the midscale segment and economy 1.7%.

- **Cruise lines have been moving into more upscale product.** In 2014, Norwegian Cruise Line acquired Prestige, and earlier this year Star Cruises acquired Crystal Cruises. Both are examples of mass market cruise lines moving into the luxury space. Carnival already owns Seabourne. At the same time, in the contemporary cruise space, existing ships are being retrofitted with more premium suites and upscale areas, and new ships have a higher suite and balcony mix.
- **Activists allege that gambling operators in the UK have been focusing their machines in areas with a lower socio-economic profile.** Research from activist website [Stopthefobts](#) found that the 50 most deprived local authorities in England had an average of 0.90 Fixed Odds Betting Terminals (FOBTs) per 1,000 adults, while the 50 least deprived local authorities average 0.38. The activists argue that the bookmakers target less wealthy populations with a product (FOBTs) that they view as addictive. As we explore in this [note](#), the evidence from a series of independent reports from the Responsible Gambling Trust contained largely benign conclusions, with clear recommendation for more research that it would be "inadvisable to rush policies on the basis of these foundational studies". However, **gambling machines remain a politically controversial issue**, and we think reductions in the maximum stakes or prizes (from £100/£500 respectively), a reduction in the number of permitted machines (from 4) or an increase in duty rate (from 25%) remain a possibility in the medium-term.
- **Pub and restaurant companies in the UK have seen divergent fortunes.** Value-led chains such as JD Wetherspoon and Hungry Horse have seen broadly no change to their prices over the last 12 months according to M&C Allegra (at £12.55 and £15.42 dinner spend per head respectively), whereas Harden's latest London restaurant guide shows average spend per head rose 2% to over £50. Around one-third of all respondents to Sacla's 2015 eating out survey said that deals and discounts were in their top 3 reasons for eating out more. **And as the squeezed middle work harder, traditional mealtimes are changing and being skipped, with the result that 'grab and go' is one of the fastest eating out segments.**

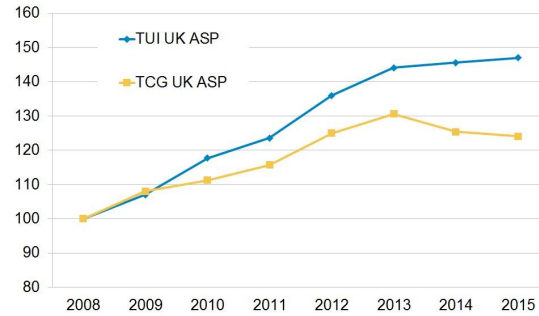
What happens if inequality of income and wealth persists and widens further over the next 20 years? We would make several general comments in relation to the Travel and Leisure sector.

Exhibit 110: In the US, upscale/luxury hotel rooms have increased from 30% of rooms to 36% over the last 25 years, while Midscale has fallen from 23% to 15%



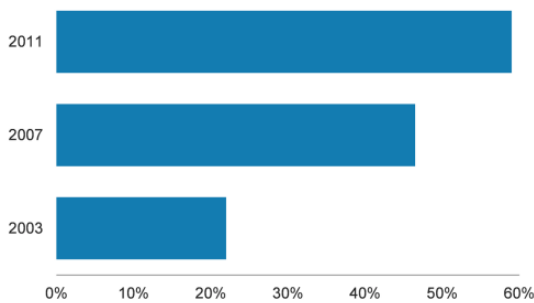
Source: STR, Morgan Stanley Research #pb

Exhibit 111: European tour operators have seen strong average selling prices in the UK as they have remixed their holidays away from budget offerings to more premium all inclusive packages



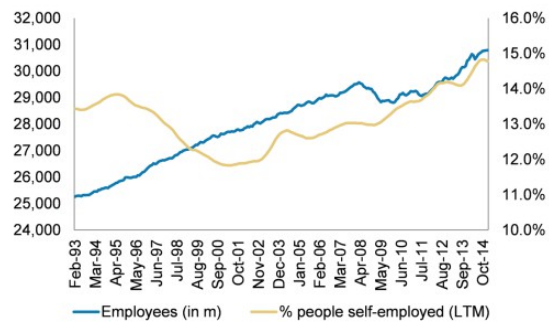
Source: Company Data, Morgan Stanley Research

Exhibit 112: UK firms are increasingly allowing employees to work remotely



Source: CBI, Employment trends survey, Morgan Stanley Research

Exhibit 113: The proportion of people self-employed in the UK has grown to almost 15% (TTM)....



Source: ONS, Morgan Stanley Research

Exhibit 114: ... while at the same time it has declined to 10% in the US

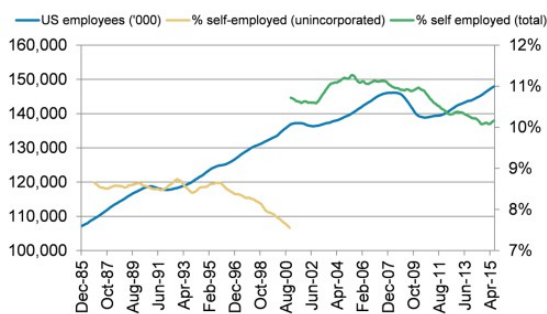
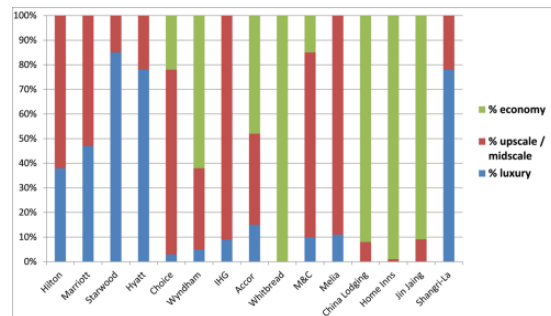


Exhibit 115: Hotel operators' room split by luxury, midscale and economy



Source: Note luxury includes upper upscale, and we group midscale and lower upscale together

- High developed market exposures largely through physical assets.** Most of the listed companies in our universe generate over 80% of income from developed markets, which is where inequality has been increasing. While emerging markets are catching the developed world up, so increasing exposure here is one way to reduce exposure to these trends. However, these companies have significant assets in developed markets, with only cruise ships having mobile assets, and only online gambling operators living mostly in the virtual world. Hence, the strategy of growing rapidly in emerging markets is less practical than for

say consumer goods companies. This might mean that asset-backed leisure companies are affected more by growing wealth inequality than more nimble retailers.

- **Luxury is a small part of the European listed leisure companies' revenue mix**, as they operate in the mass market world. So even if they could remix their business towards high end spending, it probably will not move the dial materially. However, it is higher for some of the US and Asian listed operators (e.g. Hyatt, Starwood and Shangri-La).
- **A change in strategy to move either more upmarket or more into economy segments would likely involve significant restructuring costs and write-downs** given the high level of invested capital, staffing and technology in these companies currently geared to their existing segments. Already, tour operators have seen a decade of ongoing restructuring, where employee redundancy programmes, technology replacement and investment in more modern aircraft and hotels have squeezed cash flows. Could other segments like Hotels, Pubs and Restaurants be next?

Are there any potential beneficiaries from this? A simple conclusion might be to back companies with a high exposure either to luxury segments, or with a low cost model allowing them to deliver a sustainable business model for the squeezed middle. In the hotel sector, Starwood, Hyatt and Shangri-La have a c. 80%+ proportion of their rooms in the luxury or upper upscale segments (note pure luxury under 10% for the first two), suggesting they are well positioned for the growing 1%. Conversely, Whitbread (Premier Inn) and the Chinese hoteliers have a very high exposure to the economy brands. Other hoteliers have a high exposure to the Midscale segment (in which we include the Lower Upscale hotel segment).

Endnotes

- ¹ See 'Inclusive capitalism: creating a sense of the systemic', Bank of England Governor Mark Carney, 27 May 2014
- ² See 'Poverty and Inequality', <http://undesadspd.org/Poverty/PovertyandInequality.aspx>,
- ³ UN
- ⁴ See 'The Economics of the Welfare State', Nicholas Barr, 1987.
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- ⁷ See Christoph Lakner and Branko Milanovic op.cit. paper and also 'The Future of Worldwide Income Distribution', Tomas Hellbrandt and Paulo Mauro, Peterson Institute for International Economics, 1 April 2015
- ⁸ The authors of the paper warn that there are some caveats to these calculations due to which global inequality could be underestimated. For example, there is imperfect coverage of poor countries and also very rich individuals who are often not included in the surveys. And when the latter are included at all, they tend to underestimate their incomes, especially of those derived from the ownership of capital. Furthermore, there are large financial assets held in tax havens which are not captured either by fiscal or household survey data. See also the work by Gabriel Zucman at www.gabriel-zucman.eu.
- ⁹ See 'In It Together', OECD, 2015, and 'Humanity Divided', UNDP, November 2013
- ¹⁰ See OECD Income inequality data update: Sweden, January 2015.
- ¹¹ See 'Scandinavian Unexceptionalism', Nima Sandaji, Institute of Economic Affairs.
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- ¹⁴ Outside the "old OECD", only Chile and Taiwan, Brazil, South Africa and Russia have 1% or slightly more of their population also in the global top 1%.
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- ¹⁹ See 'How to restore a healthy financial sector that supports long lasting inclusive growth?' OECD Economics Dep. policy Notes, No. 27, June 2015
- ²⁰ See <http://www.nber.org/papers/w19850>
- ²¹ See 'The New Global Middle Class: A Cross-Over from West to East', Homi Kharas and Geoffrey Gertz, Wolfensohn Center for Development at Brookings, 2010
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- ²³ See 'Out-of-Pocket payments in health care systems in the EU', Hope. September 2015
- ²⁴ See Housing Market Insights: Rentership Society Revisited , Morgan Stanley July 2015. See also <http://www.oecd.org/eco/outlook/focusonhouseprices.htm>.
- ²⁵ See "Short-time work benefits revisited: some lessons from the Great Recession," Economic Policy, CEPR; Tito Boeri, Herbert Bruecker 2011.
- ²⁶ Conference on Economic Opportunity and Inequality, Federal Reserve Bank of Boston, Boston, Massachusetts, October 2014.
- ²⁷ See www.whitehouse.gov/strongmiddleclass
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- ³⁶ See 'Childcare in Europe Affect Poor Families Disproportionately' Eurostat, June 2014
- ³⁷ see <http://aer.sagepub.com/content/50/4/714.abstract>
- ³⁸ Neuroscientists found that higher-income students have a thicker brain cortex in areas associated with visual perception and knowledge accumulation, which can enhance academic achievements. This type of research is still in its infancy and did not explore why the brain anatomy is different but other studies have shown that low-income students are more likely to suffer from worse nutrition, stress from early childhood and receive fewer educational stimuli early in life. See 'Study links brain anatomy, academic achievement and family income', MIT, April 17, 2015
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- ⁴⁰ See 'Social determinants of health, WHO http://www.who.int/social_determinants/thecommission/finalreport/key_concepts/en/.
- ⁴¹ See 'The risk of gum disease', NHS
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- ⁴³ Oreopoulos, von Wachter and Heisz estimate that a rise in unemployment by around 5 percentage points implies an average initial loss of earnings for new college graduates of around 9%, an effect which is estimated to fade only after a decade. See 'The Short- and Long-Term Career Effect of Graduating in a Recession: Hysteresis and Heterogeneity in the Market for College Graduates, American Economic Journal: Applied Economics, 2012
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⁴⁸ see 'How is Life? 2015', OECD

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⁵⁰ See also Global Issues: '

⁵¹ Could Demographics Reverse Three Multi-decade Trends?

⁵² ', 15 September 2015

⁵³ Uber is a taxi ride-hailing service company. The company concept was reportedly conceived in Paris in 2009, when the American founders could not find a taxi after leaving a conference. The term 'uberisation' was originally coined in France but is increasingly used also by the media elsewhere, see for example 'Uberisation' of economies pinching state tax revenues, www.euractiv.com, 28 September 2015.

⁵⁴ See 'Skill Bias Technical Change', Giovanni Violante, NYU and CEPR

⁵⁵ See 'Technology and Inequality', Daron Acemoglu, NBER, 2003.

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Global Stock Ratings Distribution

(as of October 31, 2015)

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STOCK RATING CATEGORY	COVERAGE UNIVERSE		INVESTMENT BANKING CLIENTS (IBC)		
	COUNT	% OF TOTAL	COUNT	% OF TOTAL	% OF RATING IBC CATEGORY
Overweight/Buy	1210	36%	340	43%	28%
Equal-weight/Hold	1445	43%	346	44%	24%
Not-Rated/Hold	91	3%	9	1%	10%
Underweight/Sell	651	19%	95	12%	15%
TOTAL	3,397		790		

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months.

Analyst Stock Ratings

Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Not-Rated (NR). Currently the analyst does not have adequate conviction about the stock's total return relative to the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

Analyst Industry Views

Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant

broad market benchmark, as indicated below.

In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.

Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

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