



# ALLIANZ PENSION REPORT 2020

## THE SILVER SWAN

**28 May 2020**

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Even before the Covid-19 outbreak, societies were becoming more and more fragmented over several social fault lines: culture, education, wealth, place of residence. Many of these overlap: The cosmopolitan, well-educated, wealthy people live in (big) cities, whereas more conservative, low-skilled workers tend to live in the periphery. There is, however, one important social fault line that cuts through all these identities: the generation gap. With demographic and climate change (and now the coronavirus pandemic), the generational conflict has staged a political return after half a century. It's easy to see why. With climate change, we have to take decisive (and costly) action now to preserve the livelihoods of the younger (and future) generations. And with demographic change, a policy skewed to today's pensioners is not in the best interest of the younger generations who will eventually have to foot the bill. Climate as well as demographic change pitch the generations directly against each other. That's what makes responsible climate and pension policies a political minefield.

Our global pension report is aimed at shedding some light on the issue of pension policy. Is a fair bargain possible? To answer that question we have developed the comprehensive Allianz Pension Index (API), building on our previous research in the field.

In fact, it has been four years since we published our last pension report. So it's time again to take the pulse of pension systems around the world. Though some countries – notably France and Brazil – have embarked on ambitious reforms in the meantime, as a whole, in recent years, the pension topic has been eclipsed by other policies, first and foremost climate-related. That's a pity, in our view: Preserving generational justness and equality is as important as mitigating climate change. Social resilience has more than one dimension. This is a topic that is very close to our hearts. Protecting people and securing life-long financial well-being is the purpose of Allianz's business.

Therefore we hope that our analyses and rankings of pension systems around the world help revive the public debate about the right policy mix and the roles of public and private pension providers. Although everyone seems to be transfixed with Covid-19 right now, pension policy is a topic too important to be lost in the battle against the virus. In fact, it should form an integral part of every recovery strategy: It's key to unlocking precautionary savings and addressing growing inequalities. The stakes are high: If the looming pension crisis cannot be defused, the social fabric might become even more frayed and a further rise in populism, with all its negative consequences for economic and individual freedom, seems inevitable. Given the deteriorating demographic outlook, the window of opportunity for decisive action is closing fast. Pension reform fatigue is the last thing many countries can afford.

# FOREWORD

## REBUILDING SOCIAL RESILIENCE



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# EXECUTIVE SUMMARY



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- The proprietary Allianz Pension Index (API) is designed to comprehensively analyze pension systems in terms of sustainability and adequacy. The index is based on three sub-indices and takes into account 30 parameters, which are rated on a scale of 1 to 7, with 1 being the best grade. The current edition covers 70 countries and is based on the latest available data as of March 2020.
- The first sub-index of the API combines demographic change and the public financial situation (financial leeway), building the starting point for any pension reform: These structural conditions are more or less given - demographic trends change only over long periods of time and budget deficits are built up faster than they are reduced, thus limiting governments' room to maneuver. Many emerging countries in Africa and Asia score rather well in this sub-index as their populations are still young, and public deficits and debts are rather low. On the other hand, many European countries such as Italy and Portugal are among the worst performers: old populations meet high debts.
- The second sub-index of the API is the sustainability index, measuring how pension systems react to demographic change. The best performers here are Indonesia and Bulgaria, mainly thanks to increases in their retirement ages, coupled with disincentives for early retirement and the introduction of capital-funded elements into the first, pay-as-you-go pillar. At the bottom of the scale are Saudi Arabia, Sri Lanka and Malaysia, where the retirement ages are still 60 and below and neither early retirement deductions nor other demographic factors are in place.
- The third sub-index of the API rates the adequacy of pension systems, questioning whether they provide an adequate standard of living in old age. Overall, the average score in the adequacy sub-index (3.7) is slightly better than that in the sustainability sub-index (4.0), a sign that most systems still put greater weight on the well-being of the current generation of pensioners than on that of the future generation of tax and social contribution payers. The countries leading the adequacy ranking have either still rather generous state pensions, like Austria and Italy, or strong capital-funded second and third pillars, like New Zealand and the Netherlands. At the bottom of the ranking are emerging countries such as Nigeria and Laos, which still lack a reliable public pension system at all.
- Combining all three sub-indices, the overall results range between 2.9 for Sweden and Belgium and 5.4 for the Lebanon. The trade-off between the sustainability and the adequacy of a pension system still seems to hound most policymakers. There is no country that stands out in balancing this trade-off: Belgium and Sweden come the closest, with scores below 3 in both categories (See Figure 1).
- What would the "ideal" pension system look like? Our analysis shows that for most countries, a better balanced system is within reach. In that respect, Covid-19 might serve as a door opener: The last months have taught the world that radical change and bold actions are possible. That's a lesson policymakers could apply to reforming pension systems as well.

Figure 1: The 2020 ranking

Weight: COUNTRY	API 2020		API 2020 Financial and Demographic Starting Point		API 2020 Sustainability		API 2020 Adequacy	
	Rank	Sum	20%		40%		40%	
			Rank	Sum	Rank	Result	Rank	Result
Sweden	1	2.91	18	3.38	6	2.96	13	2.62
Belgium	2	2.92	46	4.26	3	2.85	8	2.31
Denmark	3	2.96	17	3.32	13	3.24	11	2.51
New Zealand	4	3.00	21	3.46	27	3.83	1	1.94
United States	5	3.04	11	3.10	14	3.29	16	2.77
Australia	6	3.13	10	3.04	16	3.34	22	2.96
Netherlands	7	3.13	39	4.00	30	3.87	2	1.95
Norway	8	3.16	16	3.28	29	3.86	10	2.39
Bulgaria	9	3.16	32	3.80	2	2.67	36	3.33
Canada	10	3.24	20	3.42	26	3.80	12	2.59
China	11	3.25	46	4.26	5	2.94	26	3.06
Czech Republic	12	3.26	42	4.16	4	2.86	34	3.22
Latvia	13	3.27	26	3.64	17	3.36	23	2.99
Ireland	14	3.31	41	4.12	9	3.14	27	3.08
Luxembourg	15	3.35	40	4.04	39	4.10	7	2.27
United Kingdom	16	3.36	24	3.58	23	3.57	25	3.03
Slovak Republic	17	3.36	44	4.24	11	3.18	28	3.09
Italy	18	3.39	70	6.10	10	3.17	6	2.25
Taiwan	19	3.43	60	4.96	15	3.33	15	2.77
Kazakhstan	20	3.48	7	2.94	33	3.88	37	3.36
Finland	21	3.49	34	3.84	35	4.02	17	2.79
Israel	22	3.51	8	2.98	53	4.49	18	2.80
Switzerland	23	3.52	43	4.18	63	4.67	4	2.05
Japan	24	3.52	66	5.52	38	4.10	3	1.96
Estonia	25	3.53	28	3.70	42	4.16	19	2.81
Germany	26	3.56	56	4.76	21	3.52	24	3.01
Lithuania	27	3.57	38	3.94	12	3.22	42	3.74
Indonesia	28	3.59	15	3.20	1	2.48	60	4.89
Korea	29	3.59	62	5.22	8	3.12	35	3.25
Singapore	30	3.61	53	4.60	62	4.66	5	2.08
Peru	31	3.72	15	3.20	34	3.98	41	3.71
Malta	32	3.74	52	4.58	40	4.12	21	2.93
Russia	33	3.78	25	3.62	22	3.56	49	4.09
Austria	34	3.84	65	5.50	51	4.45	10	2.39
Mexico	35	3.84	15	3.20	7	3.12	58	4.89
Egypt	36	3.88	12	3.12	20	3.48	54	4.66
Philippines	37	3.91	2	2.44	25	3.71	57	4.85
India	38	3.91	23	3.54	31	3.87	51	4.15
Hong Kong SAR	39	3.92	36	3.86	46	4.35	38	3.52
Colombia	41	3.93	30	3.72	41	4.13	43	3.84
South Africa	41	3.93	6	2.88	24	3.59	55	4.80
Turkey	42	3.95	50	4.34	19	3.40	52	4.30
Brazil	43	3.98	58	4.82	45	4.34	32	3.20
Spain	44	3.98	67	5.88	47	4.39	14	2.63
Hungary	45	4.05	54	4.68	59	4.59	31	3.19
Croatia	46	4.05	55	4.70	38	4.10	40	3.69
Slovenia	47	4.07	63	5.28	50	4.43	29	3.12
Cyprus	48	4.08	57	4.80	61	4.64	30	3.16
Portugal	49	4.12	70	6.10	49	4.40	20	2.85
Romania	50	4.12	37	3.88	48	4.40	44	3.98
France	51	4.16	59	4.84	64	4.76	34	3.22
Thailand	52	4.18	47	4.28	44	4.33	45	3.99
Chile	53	4.22	30	3.72	60	4.61	47	4.09
Poland	54	4.27	61	5.10	36	4.05	46	4.08
Kenya	55	4.33	4	2.84	43	4.25	61	5.15
Ukraine	56	4.36	51	4.56	55	4.52	49	4.09
Vietnam	57	4.37	48	4.30	32	3.87	60	4.89
Greece	58	4.43	70	6.10	52	4.47	39	3.56
Argentina	59	4.46	22	3.50	58	4.58	56	4.82
Morocco	60	4.47	34	3.84	18	3.36	67	5.88
Malaysia	61	4.52	5	2.86	70	5.72	51	4.15
Kuwait	62	4.59	35	3.84	67	4.96	53	4.59
Laos	63	4.63	3	2.62	28	3.85	69	6.41
Nigeria	64	4.63	1	1.46	57	4.58	68	6.27
Bahrain	65	4.70	27	3.68	56	4.55	62	5.37
Qatar	66	4.78	19	3.40	66	4.87	63	5.38
Saudi Arabia	67	5.03	10	3.04	68	5.32	65	5.74
Sri Lanka	68	5.18	32	3.80	69	5.61	64	5.46
United Arab Emirates	69	5.29	64	5.28	65	4.77	66	5.83
Lebanon	70	5.45	49	4.32	54	4.50	70	6.97



# IT IS STILL ALL ABOUT DEMOGRAPHY

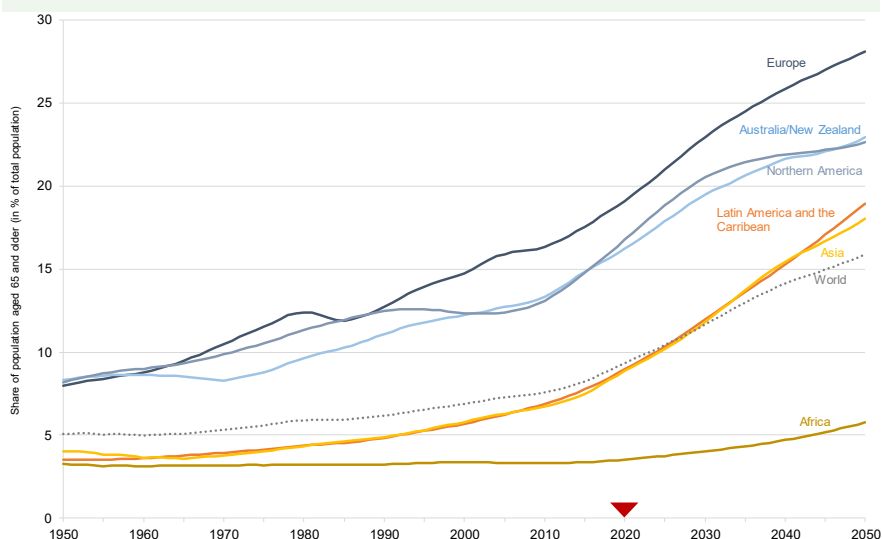
Never before has life expectancy been as high as it is today, ranging from an average 63 years in Africa to 83 years in Australia and New Zealand, and demographers are optimistic that it is going to increase by another four years<sup>1</sup> globally until mid-century. As a consequence, the worldwide number of people in retirement age is set to more than double within the next thirty years from 728mn today to more than 1.5bn in 2050. Despite this development “aging” has vanished from the headlines in recent years and so has the pension reform assiduity of many governments. Instead, pension reforms have been postponed, already adopted measures revoked or new and costly benefits introduced. This is of course much more popular than pointing out the costs that are associated with the aging of societies, due to an increasing need for nursing care and

rising health expenditures for example, or than to address the need to make the retirement system demography-proof, which might imply a cut of used to pension benefit levels. The favorable economic development and the fact that demographic change is still not felt in its full extent have abetted this attitude; in industrialized countries, most baby boomers are still active on the labor market, while in emerging countries the population share of people in retirement age is still relatively low.

However, this situation is going to change markedly, as demographic change is set to accelerate within the next decades. Due to increasing life expectancy and declining fertility rates, the share of people aged 65 and older in the world population is going to increase from 9% today to 16% in 2050,

i.e., within the next 30 years, the world population is going to age more rapidly than during the past 70. The steepest rise will be observed in Asia and Latin America, where this share is set to more than double from just under 9% to 18% and 19% respectively. In Northern America as well as Australia and New Zealand the development is going to be less dynamic, where the ratios are set to increase from 16% and 17% respectively to 23% by mid-century. The same holds true for Europe, which will nevertheless remain the oldest continent, with the share of silver agers in its total population rising from 19% to 28%. Exception to the rule is Africa, where aging is going to play only a minor role in the long run, with the share of elderlies reaching a mere 6% in 2050 (see Figure 2).

**Figure 2: The world's population is aging rapidly**



Source: UN Population Division

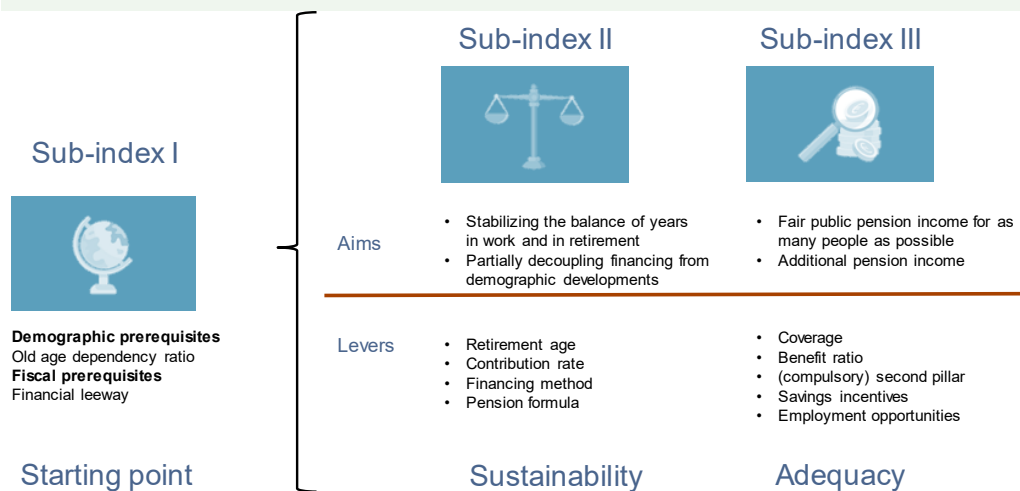
<sup>1</sup> Here: average life expectancy at birth, see: UN Population Division.

Although, the long-run effects of the new Corona virus on average life expectancy are still unclear, the underlying major demographic trends are going to remain intact. Thus, policy makers need to urgently find ways to master the balance between ensuring that pension systems provide a decent living standard in old-age for an increasing share of the population on the one hand and not overburdening future younger generations on the other. Against this demographic background, merely pay-as-you-go financed systems, where the contributions of the workforce population are used to finance the pensions of current retirees, will not meet both requirements in the long-run due to the trade-off between financial sustainability and pension adequacy. In order to secure a decent living standard in old-age, complementary capital-funded old-age provision is going to be necessary, even if the present low interest-rate environment does not spur its attractiveness (see box 1: "Negative interest rates: Causes, consequences and the way out").

With population aging accelerating, time to adjust pension systems is running out. The question is, how well are the pension systems prepared to face this double aging of societies, caused by declining fertility rates and rising life expectancy? Have there already been measures introduced to improve the long-term sustainability of the pay-as-you go system and ease the financial burden of future younger generations, like raising the retirement age, introducing demographic factors into the pension formula or lowering the overall benefit levels? Are there any incentives in place to spur additional occupational or private pension provision to guarantee future retirees a decent living standard in old-age? However, the current state of pension system differs markedly between and within world regions: While in industrialized countries the reform discussion focuses on higher statutory retirement ages and benefit level cuts in the pay-as-you-go financed first pillars, in many emerging economies the question is if the governments make progress in building-up a functioning social security system in time.

To answer these questions, we re-built the Allianz Pension Index (API) to get a more comprehensive view about the degree of pension system preparedness for demographic change in 70 countries. The API is based on three sub-indices: 1) the financial and demographic starting point, which represents the external framework for the pension system and decisively influences the need for reforms, 2) the sustainability of the pension system and 3) its adequacy. The latter two sub-indices comprise the intrinsic elements of the respective pension systems (see Figure 3). In total, we take 30 parameters into account. Each parameter value is rated on a scale of 1 to 7, with 1 being the best grade. The bands defining each parameter's grade are chosen in a way that the grading results of all countries are normal distributed. By adding up all weighted subtotals, the API assigns each country a grade between 1 and 7, thus providing a comprehensive view of the sustainability and adequacy of the pension system of a respective country compared to other countries. In the following paragraphs we present the results of the sub-indices in detail. For more details about the API, see appendix.

**Figure 3: The three sub-indices of the Allianz Pension Index**



Source: Allianz Research.

**Box 1: Negative interest rates: causes, consequences and the way out**

Not long ago, nominal negative interest rates seemed simply inconceivable. Now they are a reality in many parts of the financial world as central banks in several jurisdictions have pushed policy rates into negative territory. At one point in 2019, one fifth of debt worldwide – roughly USD 16tn – has traded at negative yields.

What are the reasons for very low or even negative rates? They should be understood as the symptom of an underlying problem: On a global scale, there is insufficient investment demand to absorb the savings available. In other words, structural factors, first and foremost demographic change, the supply shock of China and low productivity growth, were the main drivers that depressed nominal interest rates as a result of insufficient demand for consumption and particularly investment – the mirror image of excess savings. While monetary policy decisions have also weighed on interest rates since the Great Financial Crisis, the impact pales in comparison to that of structural drivers.

Initially, lower interest rates were meant to prop up demand and growth. With the onset of negative rates, however, their adverse effects on the economy have come into focus. Negative rates might, for example, be detrimental to bank profitability as margins get squeezed. At one point, this negative impact on bank profitability might even reverse the supposed positive effects of loose monetary policy. This is captured by the idea of the “reversal rate” or “economic lower bound” of rates, which defines the level of the nominal interest rate below which rate cuts become contractionary for the economy, reducing bank lending.

On companies, too, the effect might be a double-edged sword. Naturally, low interest rates ease the interest burden of companies. Thus, even barely profitable ones can remain in business as banks engage in forbearance lending. The consequence is so-called zombie firms, which act as a drag on competitive dynamics – new market entries and exits have been declining for decades – leading to higher market concentration and market power. This hinders the diffusion of new technologies, depressing productivity and economic growth. Again, very low interest rates might yield the opposite effect of what was intended: not stimulating demand and investment but lowering it.

The effect of low or even negative interest rates on savings is also unclear: Low interest rates decrease the rewards of savings; as a result, households may reduce their savings and consume more (the desired reaction function by central banks, which hope to stimulate growth). This is called the substitution effect. But lower returns could also lead to higher savings if households target savings, for example as an old-age provision: higher saving efforts are necessary to reach the same outcome (income effect).

[Our research](#) suggests that the income effect prevails. For every drop by 1 percentage point in interest rates, savings rates increased on average by 0.2 percentage points in Europe. The differences between countries and households, however, are rather huge. Nonetheless, it is easy to see how such savings behaviors could become counterproductive: The consequence would be an increased supply of savings chasing a limited pool of (safe) assets and depressing yields further. Furthermore, more savings would mean less consumption, dampening growth prospects and raising deflationary pressures. Low yields thus become entrenched.

Is there a way out of the low interest rate trap? Raising policy rates quickly, i.e. embarking on a monetary tightening cycle, is certainly not an option. Such an interest rate shock would be akin to cold turkey therapy, which could easily kill the patient: Unfolding financial crises and economic recessions might wipe out what is left of trust in liberal and open-market economies. As monetary policy did not cause anemic growth in the first place, it is not the answer. Better to turn directly to the structural causes.

Some of them, luckily, will lose steam over the coming years. When all the baby boomers, for example, have eventually retired, cautious savings could fall. And the China supply shock might even go into reverse if the geopolitical rivalry between the U.S. and China, rising political (populism and protectionism) and pandemic (Covid-19) risks hasten the road towards de-globalization. But the root cause of weak growth – lackluster productivity gains and hence insufficient investment demand – will not go away automatically. Here, bold action is necessary, ranging from massive investments into infrastructure, education and research – to uplift demand in the short term – to market measures and structural reforms to revive competition and unleash animal spirits – to sustain productivity growth in the long-term. This would not only go a long way in escaping from low interests but also in building a fairer economic model than today's.

# THE ALLIANZ PENSION INDEX IN DETAIL

## I. Financial and demographic starting points – how much is the room for maneuvering?

While the need for pension reforms is universal, the starting conditions differ significantly between countries with respect to their financial leeway and the dynamics of demographic change. It is a question of social consensus what share of GDP a society is willing to spend for their elderly to honor their contributions to economic development and progress during their working lives. However, the financial leeway for future expenses is determined by the present levels of general government gross debt and expenditures on old-age benefits; the higher these two factors are compared to GDP today, the lower is the financial leeway for future generations and the more unbalanced the intergenerational distribution of the financial burden of aging. This applies

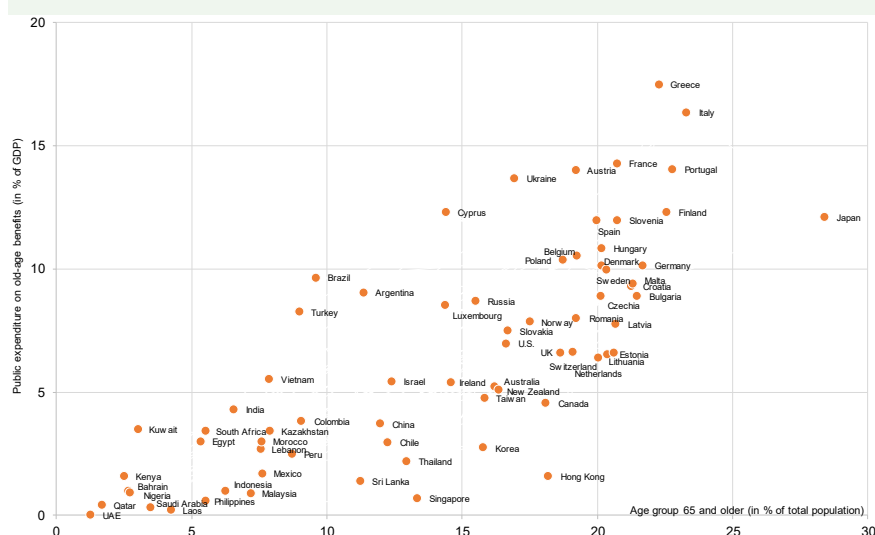
all the more as old-age dependency ratios<sup>2</sup> are set to increase. In this respect, it is not only the absolute level of current and future old-age dependency ratios that has to be taken into account, but also the dynamic of demographic change: The steeper the increase, the less time and the higher the pressure to adjust the pension system.

As most pension systems are pay-as-you-go financed and state-subsidized when running in deficit, public expenditures on old-age benefits correlate positively with the share of the elderly in the total population, especially in those countries where the public pension system is the main source of retirement income. According to the latest International Labor Organization (ILO) figures, these expenditures range between 17.5% of GDP in Greece and 0.2% in Laos, where the current shares of the age group 65 and older amount to

22.3% and 4.3% respectively. In fact, besides Japan, it is mainly in EU-member states such as Greece, Italy, France, Austria and Portugal where the share of expenditure on old-age benefits is already markedly above 10% of GDP, whereas in most African, Asian and Latin American countries this share is still below 5% (see Figure 4).

The span of the public debt ratio between the analyzed countries is considerably wider: General government gross debt ranged from less than 1% of GDP in Hong Kong to 237% in Japan. Although Greece, Italy, France and Portugal, the four countries spending the highest share of GDP on old-age benefit expenditures, are also among the ten most-indebted countries next to Japan, there is no regional cluster as with public spending on old-age (see Figure 5).

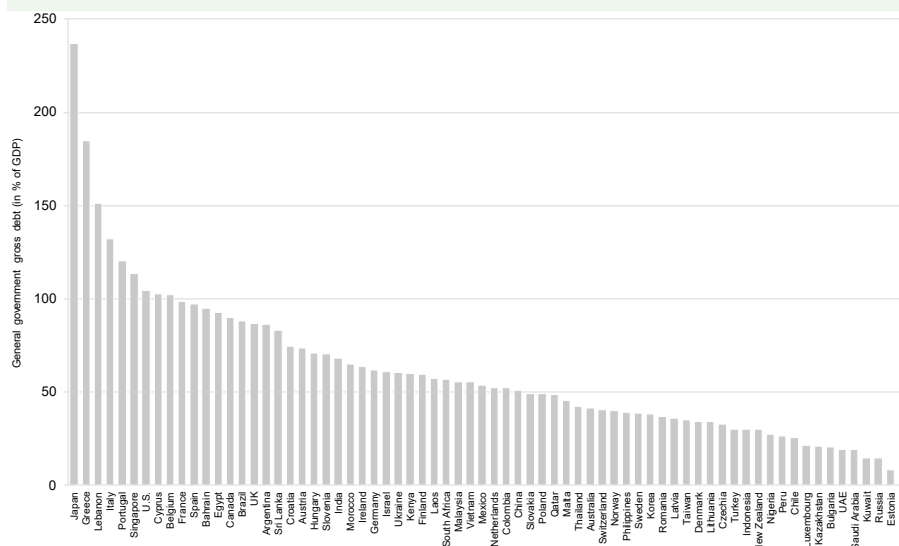
**Figure 4: Aging does not come cheap**



Sources: ILO, UN Population Division, data refers to 2018.



**Figure 5: High general government budget deficits limit financial leeway**



Source: IMF, data refers to 2018.

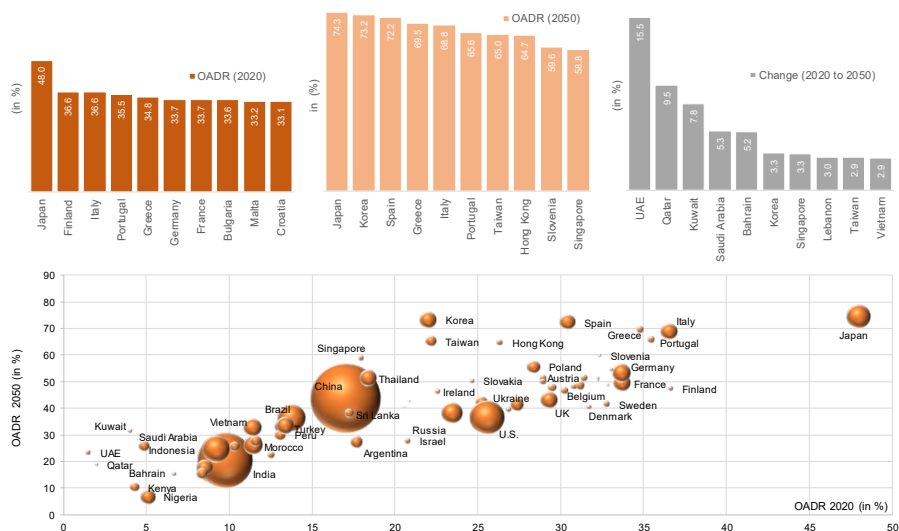
The same holds true for the old-age dependency ratios, mirroring the development of the shares of the age group 65 and older in the total population (see Figure 6). While in industrialized countries the absolute level of the old-age dependency ratios is the main reason for concern, it is the aging dynamic in emerging markets that is especially worrying: In many emerging economies the old-age dependency ratio is going to more than double within the next three decades, that is, in less than half of the time this development took in Europe and Northern America. The most dynamic development will be witnessed by countries in the Middle East

and Asia, with the United Arab Emirates being the most prominent example: Here, the old-age dependency ratio in 2050 is expected to be 16 times higher than today's, increasing from 1.5% to 23.4%. In Vietnam, the ratio is going to triple from 11.4% to 32.8%. Although these rates are going to be still rather moderate in absolute terms, they imply a breakup of traditional family structures in countries where the elderly still depend the most on their children to take care of them in old age.

As a result, the composition of the 10 countries with the highest old-age dependency ratios worldwide is set to

change markedly. Today nine out of these ten countries behind Japan are EU-member countries. By 2050, the top 10 places will be equally shared by Asian and European countries, including the so-called tiger states of Hong Kong, Singapore, South Korea and Taiwan, and the European EU-member states Spain, Greece, Italy, Portugal and Slovenia. However, there is not going to be any change in the first position: Japan, where the old-age dependency ratio is expected to increase from 48% to 74%, is set to remain the country with the oldest population worldwide.

**Figure 6: Aging is a global phenomenon**



The size of the bubble refers to the number of people aged 65 and older in 2050.

Source: UN Population Division.

Taking the combination of financial leeway and demographic development into account, it is the Emerging Markets, where budget deficits, expenditures on old-age benefits and old-age dependency ratios are still relatively low, that have the biggest room for maneuvering (see Figure 7). - However, these are often also the countries with an urgent need to build up sustainable and adequate pension systems. - Nigeria, the Philippines and Laos have in our case the best financial and demographic starting points. On the other hand, Portugal, Italy and Greece are at the bot-

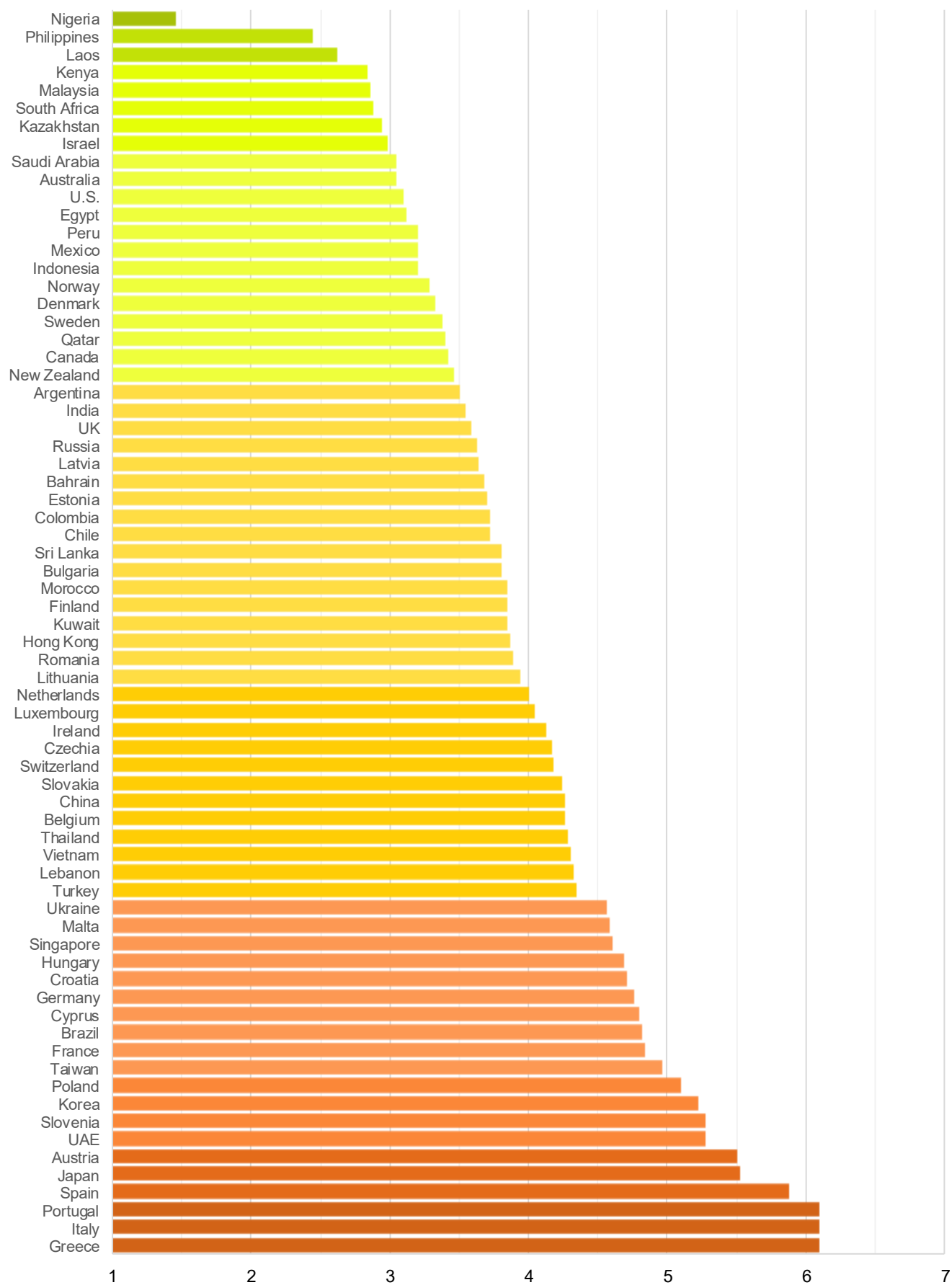
tom of this ranking. These EU countries are not only among those with the highest budgetary deficits, highest expenditures on old-age benefits and the oldest populations today, but they are also set to rank among the ten countries with the highest old-age dependency ratios worldwide by 2050. Only six industrialized countries are among the 20 with the most favorable starting conditions: Australia, the U.S., Norway, Denmark, Sweden and Canada, mainly due to rather moderate increases of their old-age dependency ratios until 2050. Australia and the three Nordic

countries also score with comparably low public debt levels of around 40%, respectively, and in the case of Denmark of only 34%. However, there are also exceptions to the rule among Emerging Markets. China, Thailand, Vietnam and Lebanon rank only in the lower half of the scale. In China, Thailand and Vietnam, the expected development of old-age dependency ratios blurs the picture, while in Lebanon it is the combination of a high budgetary deficit and a rapidly aging population.



Photo by Tran Phu on Unsplash

Figure 7: API 2020 - Ranking financial and demographic starting point



## II. Sustainability – future costs: light luggage or heavy load?

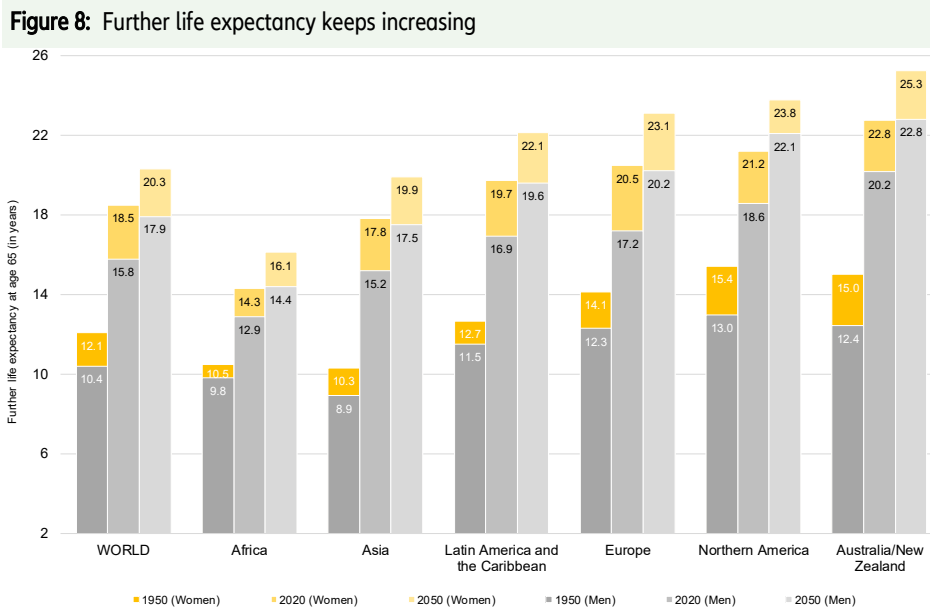
The long-term sustainability of a pension system depends on how well it responds to future demographic changes. The questions are whether the retirement age will be adjusted to expected increases in further life expectancy and if there are any other built-in stabilizers in place that can induce the postponement of retirement in order to dampen the demographic effects on the pension system, like a minimum contribution period, early retirement deductions or a demographic factor in the pension formula.

Due to medical advancements and improvements in living standards, the worldwide average further life expectancy of 65-year-olds has increased by almost six years from 11.3 to 17.2 years since the 1950s. It is set to increase by another two years by 2050. This trend applies to all world regions, although there are marked regional and intra-regional differences concerning the pace and absolute number of years (see Figure 8): The strongest improvement from the 1950s until today is observed in Asia, where the average fur-

ther life expectancy of 65-year-olds has increased 1.7-fold, i.e., from 8.9 to 15.2 years for men and from 10.3 to 17.8 years for women. As a result, Asia changed places with Africa, which is today the continent with the lowest average life expectancy of 65-year-olds, reaching 12.9 years for men and 14.3 years for women. The highest average further life expectancy at this age is reported in Australia and New Zealand, where it has increased from 12.4 to 20.2 years for men and from 15.0 to 22.8 years for women since the 1950s. This is almost eight years higher than in Africa. Next in the ranking are retirees in Northern America with 18.6 and 21.2 years, respectively, followed by their contemporaries in Europe, where the average 65-year old men can expect to spend 17.2 years in retirement and the average women 20.5. By 2050, further life expectancy at the age of 65 is set to range between 14.4 years and 22.8 years for men and between 16.1 years and 25.3 years for women, with the lower range found in Africa and the upper in Australia and New Zealand.

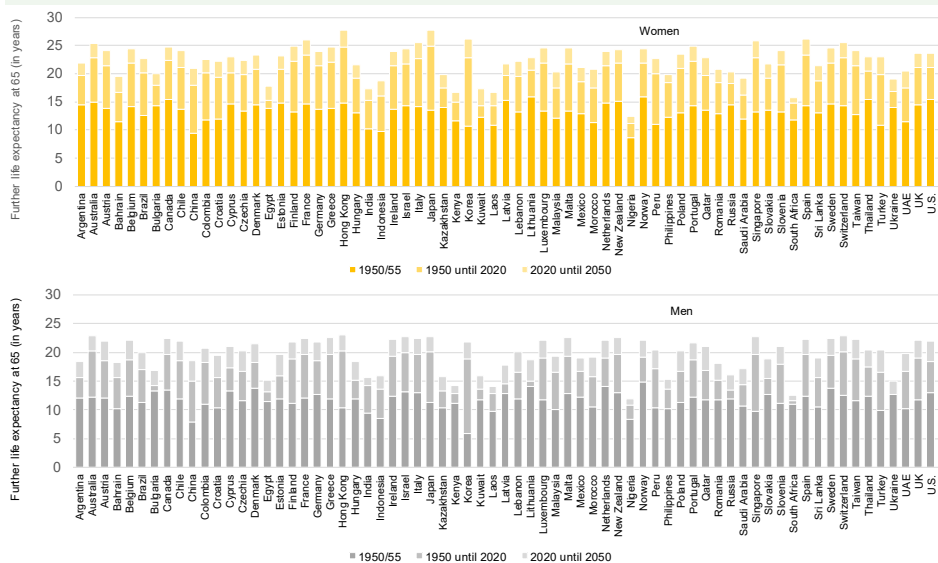
On a country level, the life expectancy gap at the age of 65 is even wider. Among the 70 countries covered in our

pension index, it amounts to 9.5 years for men and 13.7 years for women, ranging from 10.8 years in Nigeria for men to 20.3 years in Hong Kong and Australia, and from 11.2 years in Nigeria for women to 24.9 years in Japan (see Figure 9). According to current UN estimations, this gap is going to widen further, with Nigeria expected to remain at the bottom of this ranking, where the average further life expectancy of 65-year old men is set to reach 11.9 years and for women 12.5 years in 2050. In Hong Kong, the average male retiree of this age can expect to spend 23.1 years in retirement and his female contemporary 27.8 years. In most Western European EU countries, this time span is going to rise above 21 years for men and to surpass 24 years for women, with France and Spain at the top of the regional ranking: In both countries, the average further life expectancy of 65-year old women is expected to exceed 26 years.



Source: UN Population Division.

**Figure 9: Marked difference in further life expectancy at the age of 65**



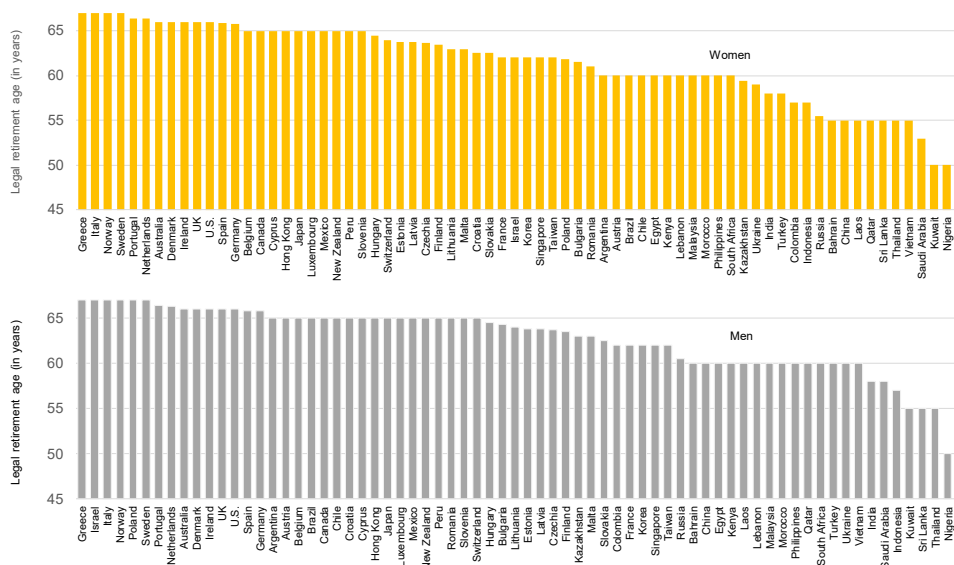
Source: UN Population Division.

Despite these improvements in life expectancy, changes to the statutory retirement age are highly controversial. In many countries, there is a persistent reluctance to raise the pension age in line with gains in life expectancy, although the number of years in good health has increased, too. The latest example is Germany, where it was decided in March 2020 that there will not be any further increases to the statutory

retirement age above the age of 67. Furthermore, it is still also the practice that the legal retirement age for women is lower than that for men despite their higher life expectancy. In most countries, it ranges between 60 and 65 years for men and between 55 and 60 years for women (see Figure 10). Thus in the 70 countries, the average statutory pension age for men is 62.7 years and for women it is 61.3 years. However,

there are exceptions to the rule: In eight of the analyzed countries<sup>3</sup>, the statutory retirement age for men is also below 60 years, with the United Arab Emirates, marking the lower end of the list as Emiratis can already retire at the age of 49. In 13 countries, the current legal retirement age for both men and women has been already raised above 65 years<sup>4</sup>.

**Figure 10: Legal retirement ages**



Sources: National social security administrations, ministries of social affairs and OECD.

<sup>3</sup> India, Indonesia, Thailand and Sri Lanka, as well as Nigeria and the Middle East countries Kuwait, Saudi Arabia and the United Arab Emirates.

<sup>4</sup> Australia, Denmark, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, UK and the U.S.



As a consequence, the balance between the time span of working life and the time spent in retirement has deteriorated within the last few decades. Against the background of demographic change, 37 countries have passed pension reforms that include a gradual increase of the legal retirement age. The question is whether the agreed upon increases are sufficient to compensate for the expected improvements in further life expectancy. In order to assess the adequacy of these announced increases, we compared the ratios of the time span of an assumed model career to the average time spent in retirement today and in 2050. The assumed model career begins at the age of 15 and ends with the specific pre- and after-reform legal retirement age, while the average time spent in retirement is the average further life expectancy at the respective retirement age. Given the different pension ages for men and women, we did the exercise for both sexes separately.

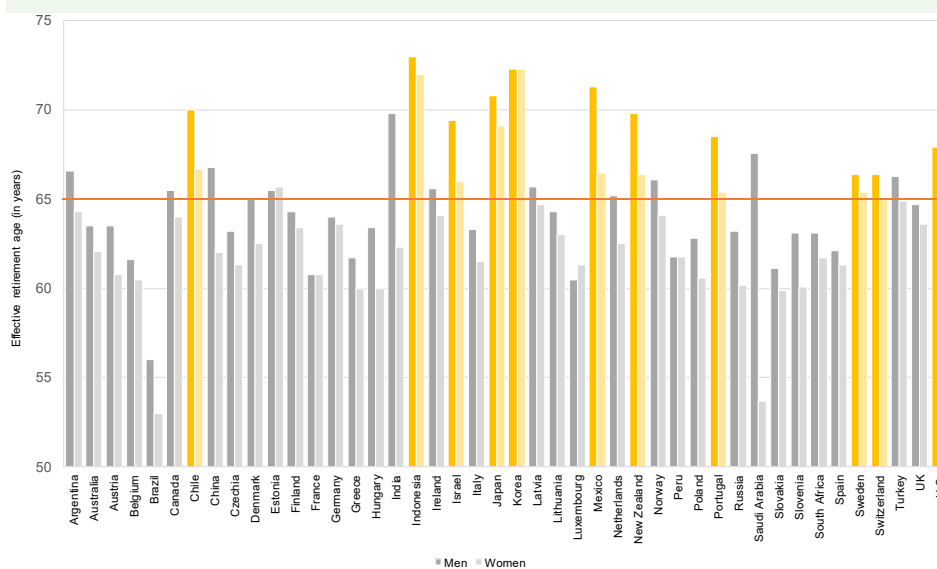
According to this model, the average time span of working life is 2.6 times the time spent in retirement for men, ranging from 1.2 in the United Arab Emi-

rates to 3.4 in Poland. With an average 2.1 times, the factor is slightly lower for women; however here the gap is smaller, ranging between 1.1 in the United Arab Emirates and 2.7 in Mexico. In both cases, the average factor is set to decrease further by 0.2 points in the case of men and 0.1 points regarding women. Taking into account the agreed upon reforms as of March 2020, the increases in retirement ages for men will be only sufficient in 13 of the 70 countries. However, these are mainly countries where today's legal retirement age is still 60 or below and is going to be raised to 65 in the long run, like China, Egypt, Indonesia or Turkey. In all other countries, the ratios of working life to time spent in retirement are set to decrease further, if no additional reform measures are taken. The strongest further deterioration of the ratio would be witnessed in Croatia and Poland, where the governments have annulled already passed reforms to increase the retirement age above the age of 65 in recent months. With regard to the pension age of women, there are 20 countries where the announced increases of the retirement age seem to be adequate. This holds

especially true for China, Indonesia and Turkey, where the retirement age of women is set to increase to 65 years in the long run. Thus, in the majority of countries, the expected gains in further life expectancy of women are going to be higher than the increases in retirement age, despite the fact that women's retirement ages are gradually being adjusted to that of men in many countries.

However, the actual working life span, especially in industrialized countries, is in many cases markedly shorter than the stylized one because of longer school time and periods spent in training, as well as an increasing number of broken career paths. This holds true especially for women, who work part-time or are not available on the labor market at all as they often take care of children or older family members. Furthermore, the effective retirement age in most OECD countries is still markedly below 65 due to generous early retirement rules (see Figure 11). Against this background, any further measures that lead to a postponement of retirement gain in importance.

**Figure 11: Retirement starts in most cases before 65**



Source: OECD.

In fact, in almost every country, individuals need to fulfill a minimum contribution period to be eligible to claim a pension, in most countries this is 15 years. Half of the analyzed countries have introduced pension deductions in case of early retirement, lowering the lifelong pension payouts, and some countries grant premiums for postponing retirement after the legal retirement age. However, less than a third of the analyzed countries have added a demographic factor in their pension adjustment formula that would dampen the increase of first pillar pension benefits in line with the gains in further life expectancy. Against the background of exponentially rising old-age dependency ratios, this implies that in most countries, contribution rates or tax subsidies have to be raised further in order to guarantee the promised benefit level, as most first pillar pension systems are mainly pay-as-you-go financed and if necessary subsidized out of the state budget.

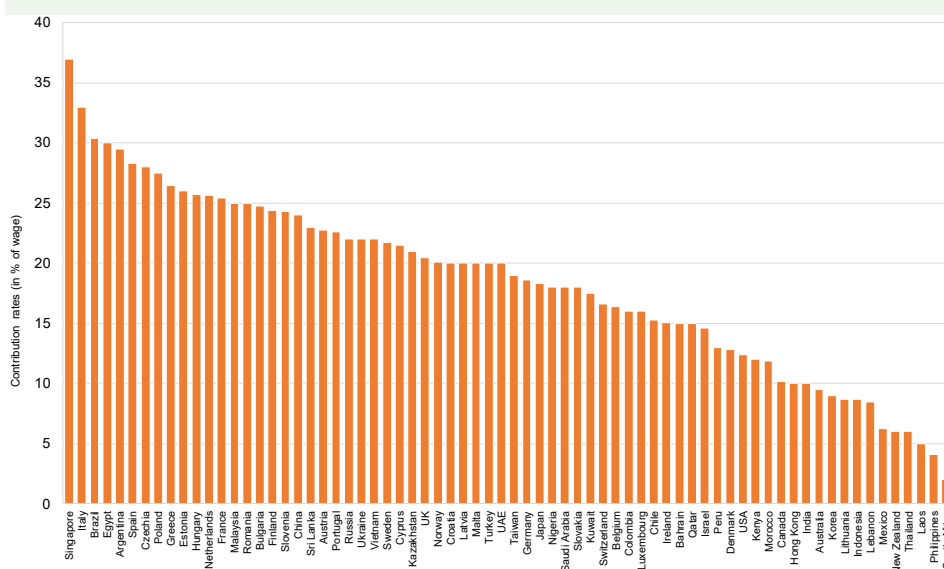
However, where contribution and tax levels are already high, leeway for further increases is limited, as these imply additional labor costs. This is es-

pecially the case in many countries that are going to see the strongest increase in old-age dependency ratios, including Greece, Italy, Spain and Singapore, where contribution rates are markedly above the average 18.5% (See Figure 12). High labor costs can not only diminish international competitiveness, but also be a trigger of flight in the informal labor market to avoid contributions, especially when future pension payments are considered incommensurate with contributions made. Besides demographic change, economic downturns or crises like the one witnessed due to the Covid-19 outbreak, which cause rising unemployment and thus diminish the number of contribution payers and the wage sum, might also trigger temporary increases in contribution rates or state subsidies to pay for public pension deficits, which have the same effect as an additional tax and thus tend to slow down economic recovery. (See also box "Corona takes a toll on public pension systems")

Taking all these factors into account, no country actually scores high with regard to sustainability (see Figure 13). The best result is 2.5 in Indonesia, where

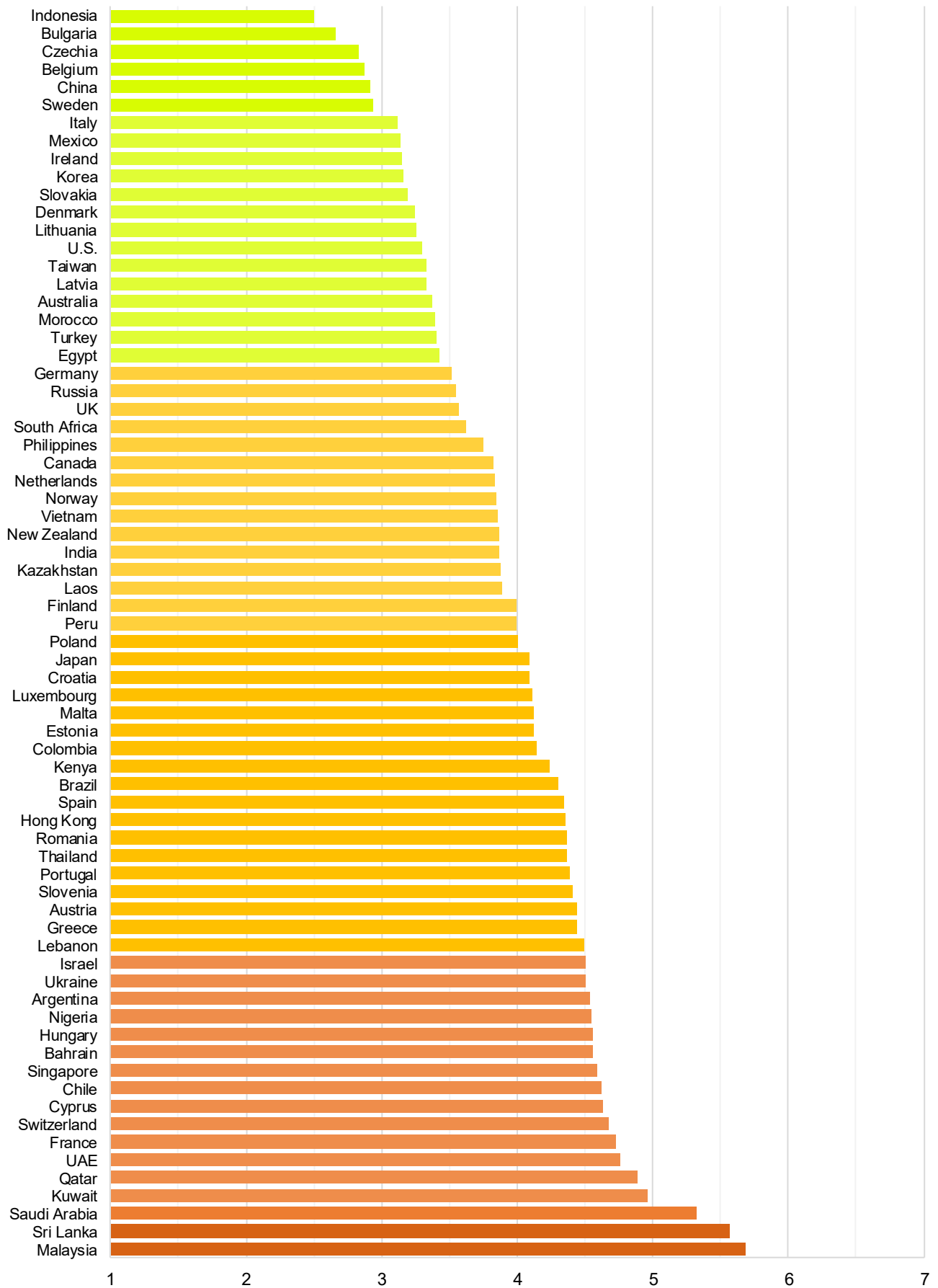
the retirement age for men and women is going to increase from 57 to 65 years, the minimum contribution period is 15 years and the contribution rate below 10%. Second ranks Bulgaria, the country with the lowest further life expectancy of all EU members. Here the statutory retirement age for both men and women is set to increase to 65 until 2037; the minimum contribution period of 39 and 36 years, respectively, is comparatively high and pension deductions in case of early retirement, as well as a demographic factor in the pension formula, tend to cushion the effects of demographic change on the pension system. The same holds true for the Czech Republic, where the retirement age is set to rise to 68 years and early retirement is also sanctioned by pension deductions. At the bottom of the scale are Saudi Arabia, Sri Lanka and Malaysia, where the retirement ages are 60 and below and neither early retirement deductions nor other demographic factors are in place, which is last but not least owed to the fact, that old-age dependency ratios and thus the reform pressure in these countries are still relatively low.

**Figure 12: Marked differences in leeway for further rises of mandatory pension contributions**



Sources: National social security administrations, ministries of social affairs, ministries of finance and OECD.

Figure 13: API 2020 – Ranking Sustainability



Source: Allianz Research

**Box 2: Corona takes a toll on public pension systems**

The impact of Covid-19 on public pension schemes is less obvious but it's a heavy hit. This is because the pandemic triggered a shockwave in the capital markets, and tumbling stock markets and new rounds of interest rate cuts have diminished pension fund assets and private savings.

In most countries, the regular pension adjustment depends on the development of the average wage level. With unemployment and short-time work increasing during the crisis, the average wage level in 2020 is probably going to be lower than last year's. Thus, in the best case, pensions are not going to increase in the next year. In countries where there is no indexation, this will leave retirees with real purchasing power losses. Future retirees might also be affected by this sudden drop of the average wage level, in case their future pension is linked to the relation of their own income to the average income level. Thus, if no corrective measures are applied, in the U.S. "a middle-income worker born in 1960 could have his annual Social Security benefits in retirement reduced by around 13%, with losses over the retirement period in excess of \$70,000" due to this effect, for example<sup>5</sup>.

The pandemic also affects the tax and contribution payers. In order to meet the pension obligations, in the short-term, higher tax subsidies will be necessary to cover the declines in contribution income of the national social security agencies due to higher unemployment rates and short-time work. However, if labor markets do not recover in the short- to mid-term, increasing contribution rates will be inevitable.



Photo by Matthew Bennett on Unsplash

<sup>5</sup> Biggs, Andrew G. (2020), p. 1, assumed a 15% decline in the Social Security Administration's measure of economy wide average wages in 2020.

### III. Adequacy – future standard of living: gourmet restaurant or fast food?

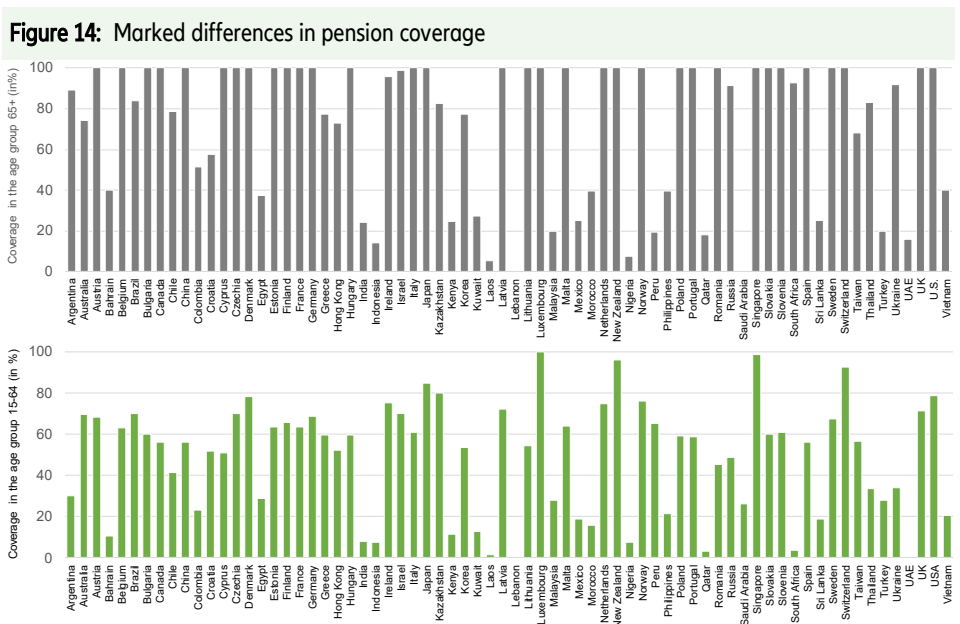
Financial sustainability is only one side of the coin. As important is the question of whether the pension system provides an adequate standard of living in old age. In order to systematize the adequacy of the analyzed countries' pension systems, we took into account the coverage of the respective public pension system, its gross benefit ratio as well as the availability of further pension income stemming from occupational or private pension provision or gainful employment.

One of the most crucial factors is the effective coverage of the pension system, i.e. the share of people in the working age population who can build-up pension entitlements and the share of people of retirement age who receive a pension. In most countries, coverage in the pension system is coupled with employment in the formal sector and earnings above a lower income threshold. Thus, there are marked differences between industrialized countries

and Emerging Markets regarding coverage despite the fact that in all countries besides India, contributions to the public pension system are compulsory (see Figure 14): In most industrialized countries, 100% of the population of retirement age receive a public pension. In Emerging Markets, there are huge differences regarding the development status of the pension systems, with coverage ranging between 5.6% in Laos and 92.6% in South Africa. The coverage of the population at working age is generally lower, caused by later labor market entries due to longer education times, temporary part-time employment with wages below the lower contribution assessment limit or unemployment. But nevertheless the differences are obvious: While the coverage ranges between 60 % and 100% in industrialized countries, it is still below 30% in most Emerging Markets.

The distinction between industrialized and emerging countries is less evident with respect to gross benefit ratios (see Figure 15). According to ILO standards, the benefit ratio of a first pillar pension

should range between 40% and 60% of an average wage as public pensions are often the sole source of income in old age. Actually, India has the highest gross benefit ratio<sup>6</sup> of all countries, corresponding to 83% of the average income, followed by Italy and Luxembourg, where the ratio is also close to 80%. Among the ten countries with the most generous pension systems are also Qatar and Vietnam, with benefit ratios of 75%. However, these ratios look less impressive if one takes into account that in India, the coverage ratio of the population aged 65 and older is merely 24%, in Qatar only 18% and in Vietnam 40%. For comparison: In the six EU countries ranging among the top ten of this ranking - Italy, Luxembourg, Austria, Denmark, Portugal and Spain - the coverage is 100%. At the bottom of this list, with benefit ratios below 20%, are South Africa, Kenya and Lebanon, where retirees receive only a lump-sum payment.

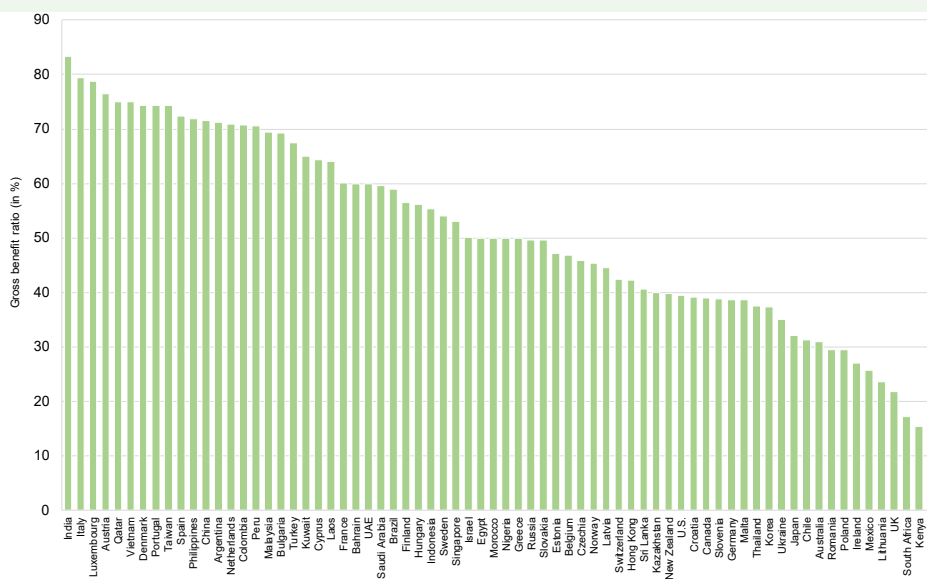


Sources: OECD, national social insurance providers and national statistical offices.

18 <sup>6</sup> The gross pension replacement rates provided by the OECD refer to a male retiree who earned 100% of the average wage, see OECD Pensions at a glance, database. However, the actual national average can differ.



**Figure 15: Generosity is not a question of economic development**



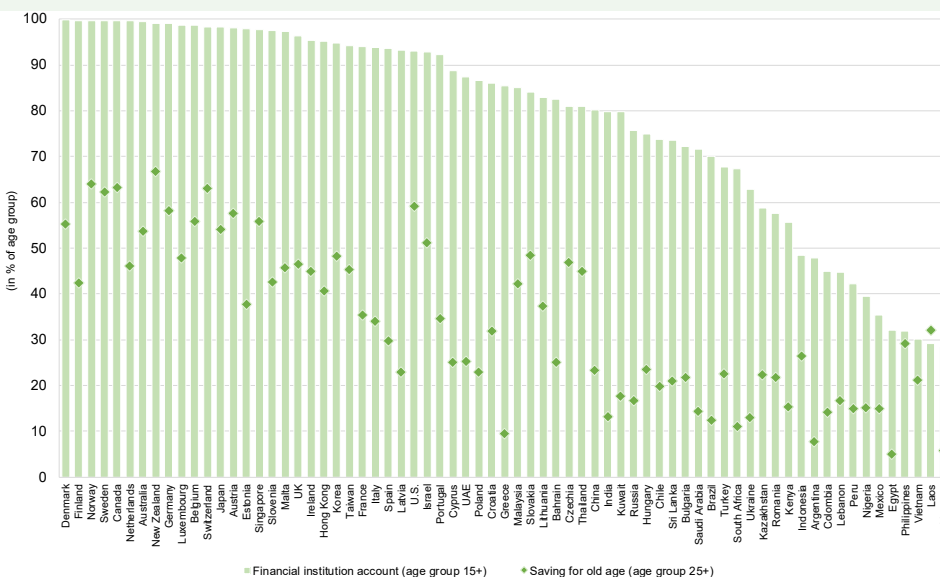
Sources: OECD, national social insurance providers and national statistical offices.

However, due to demographic change, capital-funded old-age provision and other sources of income are going to play a greater role in retirement income. While in industrialized countries, benefit levels provided by public pension systems are set to decline in the course of already adopted pension reforms, many emerging countries have introduced capital-funded elements right from the start, factoring in the aging of their societies. In this context, access to financial services and financial literacy gain in importance as necessary preconditions for private old-age provision, which is needed to maintain the living standard in old age. This

holds especially true for emerging countries, where informal labor markets are still dominating and thus only a small share of the working-age population has the chance to join a pension plan offered by an employer. In most of the analyzed countries, occupational pensions are voluntary; however, there are incentives like tax deductions or reduced social security contribution rates in place to increase the attractiveness for employers and employees. In many emerging countries, there has been a lot of progress with regard to access to financial services and financial literacy in recent years. As a result, in 60 of the analyzed countries, more

than half of the population aged 15 and older has an account with a financial institution. Only in Egypt, the Philippines, Vietnam, Laos and Morocco is this share less than one third (see Figure 16). When asked about the savings motive, between 5% of Egypt's population aged 25 and older and 67% of New Zealand's stated old age. Despite the accelerating demographic change, the share was only over 50% in fourteen countries<sup>7</sup>, mainly in industrialized ones. In contrast, in most emerging countries, old age was a reason to save for less than 30% of this age group.

**Figure 16: Access to financial services and old age as savings motive**



Source: World Bank

<sup>7</sup> In alphabetical order: Australia, Austria, Belgium, Canada, Denmark, Germany, Israel, Japan, New Zealand, Norway, Singapore, Sweden, Switzerland and the USA, see World Bank.

The structure of the pension system, the level of access to financial services and the awareness of the need for occupational and private pension provision is reflected in the amount of private households' net financial assets compared to GDP. Private households in countries with strong second and third pillars tend to have higher financial assets than their peers in countries where a generous pay-as-you-go financed public pension system is in place. The ratio of net financial assets to GDP is highest in Taiwan, amounting to 460%, followed by Hong Kong (412%), the U.S. (335%), Japan (280%), New Zealand (240%) and Switzerland (240%). At the bottom of the ranking are Egypt, Kazakhstan, Nigeria and Qatar, where this ratio is still below 10% (see Figure 17). In order to take into account the fact that income and assets are not equally distributed, we also calculated the Gini coefficient for the wealth distribution<sup>8</sup>. This blurs the picture for countries where a large part of financial assets is owned by a small group of private households, like in Denmark or the U.S. for example.

Of course, it is often argued that equity market volatility and the low-yield environment render the need for occupational and private pension provision obso-

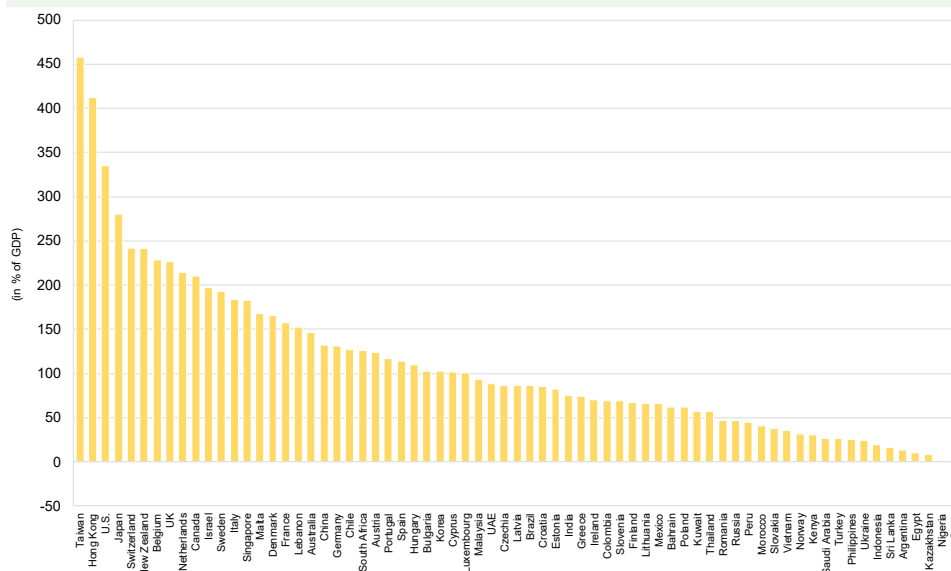
lete. Without doubt, the low-yield environment is a challenge for pension providers – and it is here to stay for the time being (see box “Negative interest rates: causes, consequences and the way out”). But the industry has finally learned to come to grips with low yields and has revamped their business models and product suite accordingly. And although equity market slumps destroy the value of pension funds' assets, past experience shows that most can cope with temporary setbacks (see box “Plummeting markets: The death knell for pension funds?”). Thus, in the long run, financial markets remain an indispensable source of additional old-age income.

Last but not least, we took into account the activity ratios of the elderly in the labor market, though this might be a double-edged parameter. On the one hand, a high and increasing share of people in retirement age still active on the labor market hints to the fact that the pension system fails to provide for a decent living standard in old age. On the other hand, it is a sign that the labor market absorbs also people aged 60 and older, which will become crucial when the retirement ages in many industrialized countries are increased

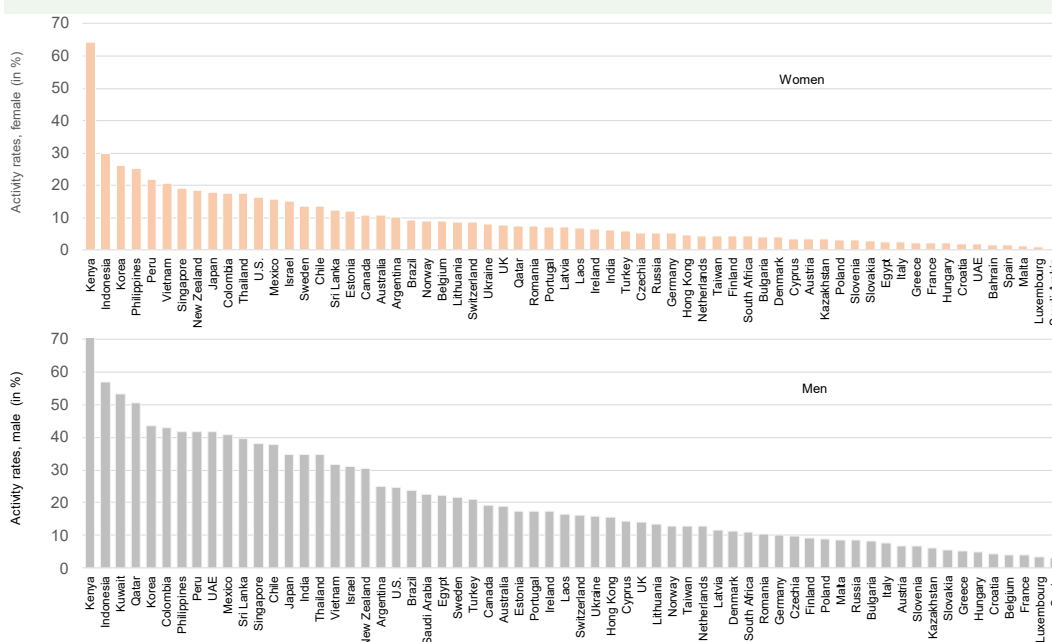
further. Otherwise this reform measure would turn out to be merely a disguised cut of benefit levels. In fact, we observe the highest activity ratios in countries where pension coverage is very low. In Kenya, almost 70% of the men and 64% of the women aged 65 and older are still active on the labor market; in Indonesia these shares amount to 57 % and 30%, respectively. At the bottom of this ranking are countries like France, Luxembourg and Spain, where less than 4% of the elderly population is still active on the labor market, due to the average benefit level being comparatively high and the coverage reaching 100% (see Figure 18).

Combining the results of the two sub-indices, we find that New Zealand, the Netherlands and Japan, i.e., countries with strong second and third pension pillars, where private households hold high net financial assets, have the most adequate pension systems. The overall results are even just below 2.0 in these three countries. On the bottom of the ranking are emerging countries like Nigeria and Laos, which still lack a reliable public pension system at all (see Figure 19).

**Figure 17: Marked differences in private households' financial wealth**



Source: Allianz Global Wealth Report

**Figure 18: Low pension coverage prevents retirement**

Source: ILO

Thus, the range of the results in the adequacy sub-index is much broader, from 1.9 in New Zealand to 6.9 in the Lebanon, than in the sustainability sub-index, where the span is from 2.5 in Indonesia to 5.7 in Malaysia. Nevertheless, when comparing the results of the adequacy

and the sustainability sub-indices, it is obvious that in industrialized countries, pension systems are still more focused on adequacy than on long-run financial sustainability, with the average score for adequacy being 3.7 against 4.0 for sustainability. This is last but not least

owed to the fact that they were (re-)built in the 1950s, i.e., in times of the baby boom, when the aging of societies was no issue at all. That makes it hard for governments today to cut benefits for a population accustomed to them.

### Box 3: Plummeting markets: The death knell for pension funds?

Back in 2008, the financial crisis caused strong corrections in financial markets. The Eurostoxx 50, for example, dropped by a whopping 44%. As a consequence, pension funds' assets lost value, too, but to a lesser degree than the stock markets, as pension funds typically invest only part of their portfolio in equities. For example, the Dutch pension funds' assets decreased by "merely" 17% as they had invested 43% of their assets in fixed income and only 38% in equities. Moreover, the resulting low interest rates led to an increase of the value of their bond portfolio. The asset values already exceeded the value of Q1 2007 in Q1 2010.

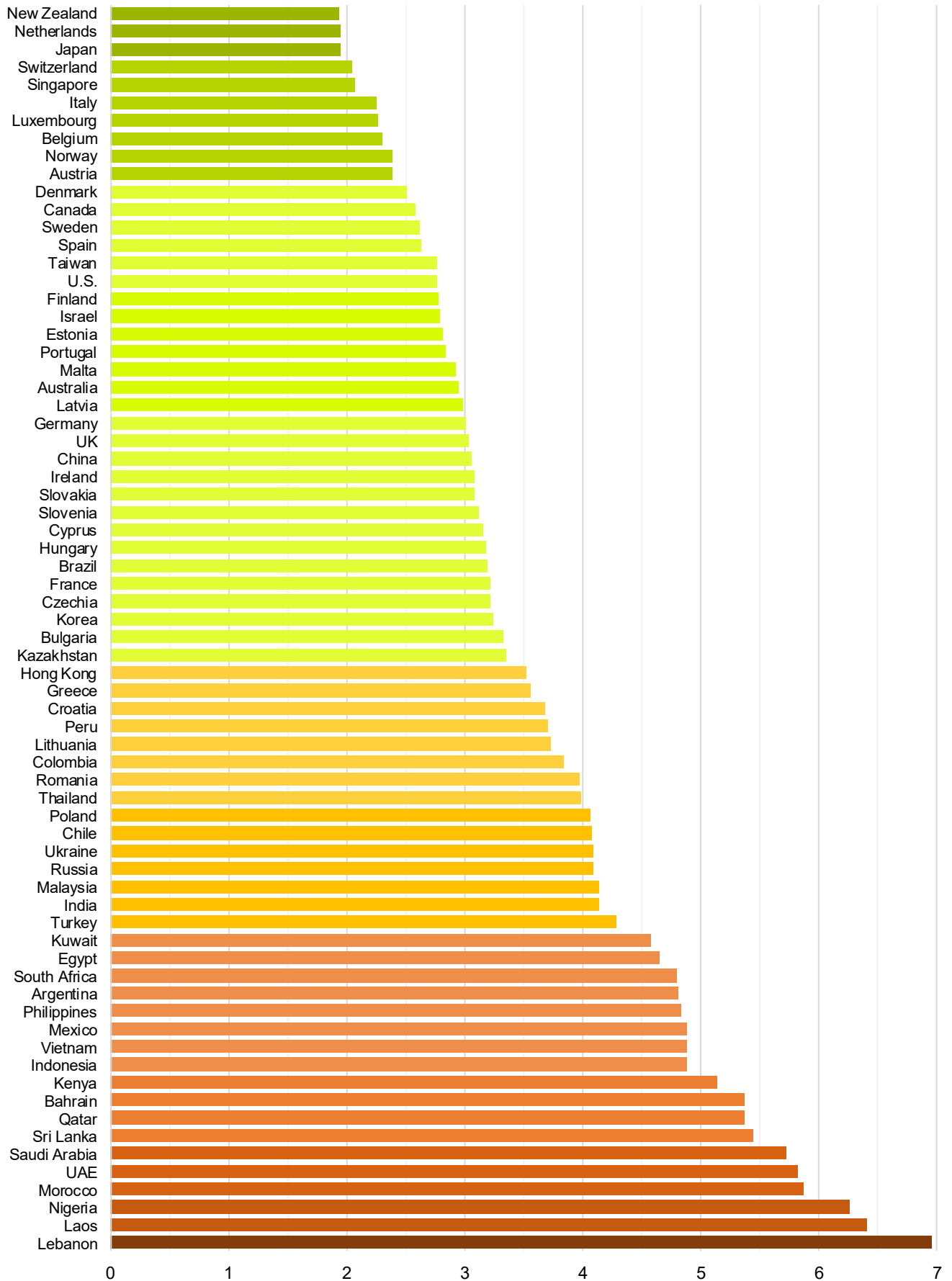
However, low interest rates are a double-edged sword: While bonds perform well, pension funds' liabilities go up even more. Interest rates are a key component of the discount rate, which is used to calculate the liabilities. According to the Dutch central bank DNB, a 1% decrease of interest rates leads to a 12% increase of the coverage gap between assets and liabilities.

Until the third quarter of 2008, the funding ratio, a measure for the financial health of a pension fund, of the Dutch pension funds was still above 130%, which is a strong value and can be explained by stable interest rates. But the double whammy of plummeting stock markets and falling interest rates sent the funding ratio below 100%. Although the assets' value today is more than twice the level before the financial crisis, the funding ratio has not recovered and does not even come close to its previous peak value of 150%. The main reason is the low interest rates environment that drives the rise of liabilities, which have more than tripled since 2007.

According to the OECD, a funding ratio above the required minimum of 105% is considered a sign of a financially healthy pension fund. Once the funding ratio gets below a critical value of 95%, the central bank demands the pension funds to act, for example to increase the contributions or to cut entitlements. This is what some Dutch pension funds did as a reaction to the low interest rates, in order to recover from funding ratios below 100%.

The upshot: A drop in asset values is a temporary hit to pension funds. As long-term investors, they can afford to wait for the financial markets – and thus for their assets – to recover. The real driver of deteriorating funding ratios are low interest rates – which might now stay even lower for longer, given the devastating effects of the Covid-19 pandemic and its impact on private and public debt.

Figure 19: API 2020 - Ranking Adequacy



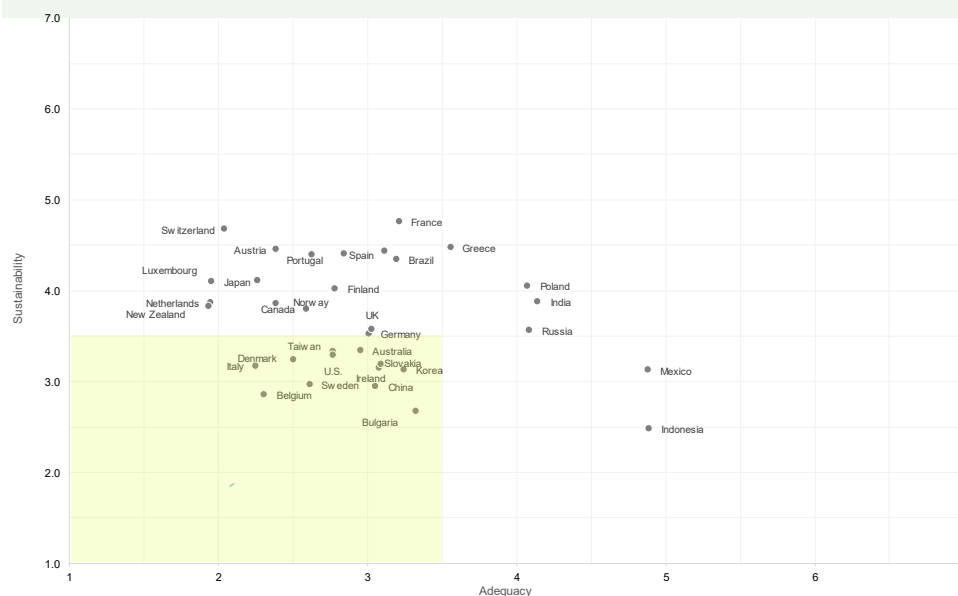
However, there is no country that stands out as successful in balancing the trade-off between sustainability on the one hand and adequacy on the other (see Figure 20). Belgium and Sweden come the closest, with scores below 3 in both categories. In general, countries which manage to fulfill both criteria are at best upper midfield, with results ranging between 2.0 and 3.5 with respect to adequacy and 2.5 and 3.5 in the sub-index sustainability. Indonesia, which turned out to have the most sustainable pension system has at the same time one of the least adequate ones, ranking in 60th place in the adequacy sub-index, while New Zealand, which ranks first with regard to

adequacy is only mid-field when it comes to sustainability, being at 30th position.

Adding the financial and demographic starting points, i.e., the financial leeway and demographic change, the overall results range between 2.9 for Sweden and Belgium and 5.4 for the Lebanon (see Figure 21). There is no single outperformer; in fact the first 21 places are merely upper midfield, if judged by their scores. They are dominated by countries where the governments strengthened not only the funded elements but decided also to increase the retirement age. The best example is Sweden, where the first pillar comprises

a funded sub-pillar, the upper limit of the age corridor for retirement was increased to 69 and the pension benefit is linked to the average further life expectancy of the same year. The most populous EU members Germany, Spain and France rank only midfield, which should be taken as a hint for the need of further reforms. However, against the background of demographic change, time to fix the pension systems, in order to guarantee not only intra- but also inter-generational equity, is running out for all countries.

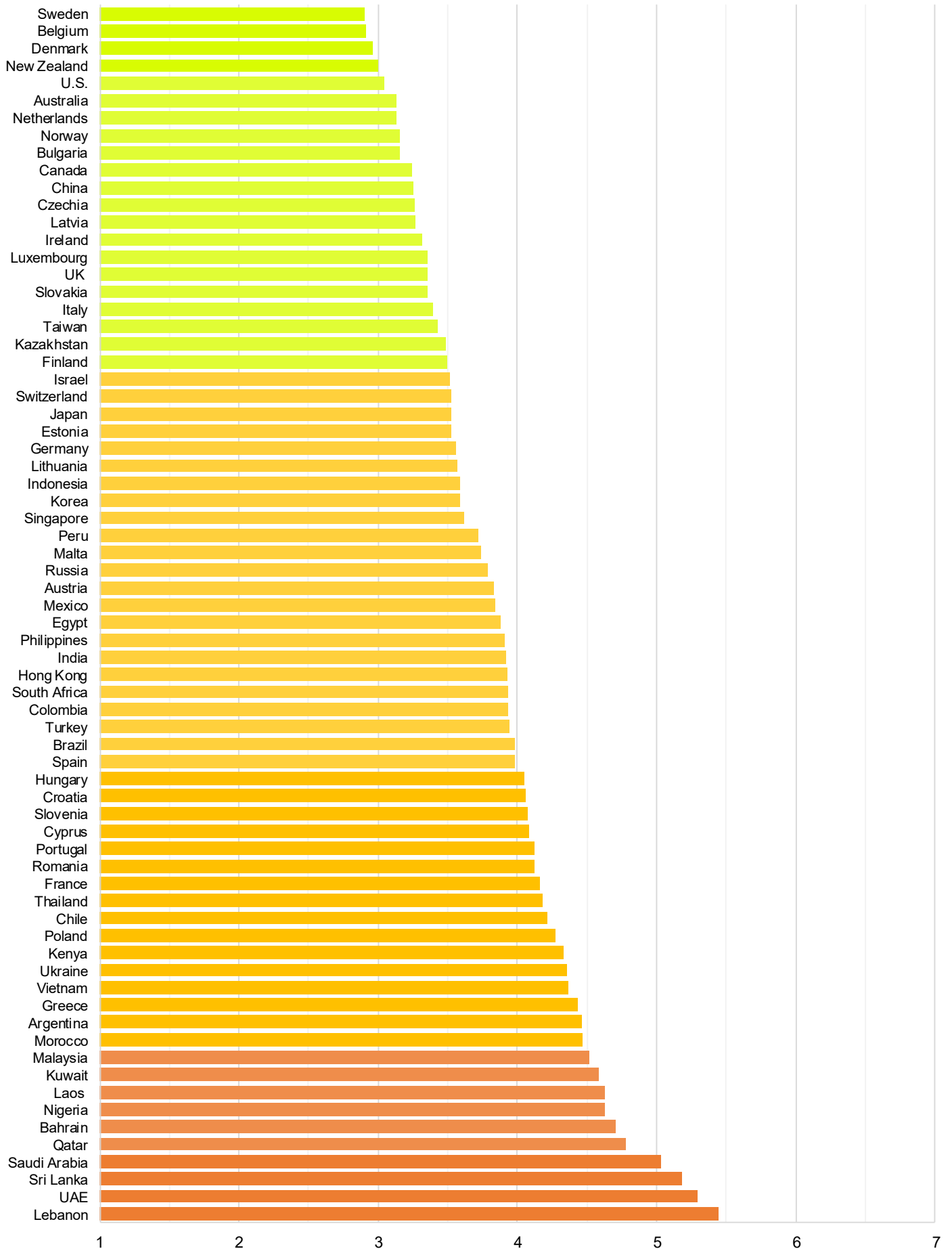
**Figure 20: Trade-off between sustainability and adequacy in selected countries**



Source: Allianz Research



Figure 21: API 2020



# WHAT WOULD A PERFECT PENSION SYSTEM LOOK LIKE?

Of course, it is impossible to overhaul an existing pension system from scratch. Instead governments have to implement gradual reforms, taking into account the legal claims of retirees and contributors. Furthermore, there is no one-size-fits all solution. But there are some components that help to make a pension system more demography-proof.

What would it take to be among the toppers in every sub-category of our API?

Most important is the coverage of the pension system: all people in retirement age and at least 75% of the working age population would be covered by the pension system.

The retirement age would be adjusted to the development of life expectancy to ensure that the ratio of working life to time spent in retirement remains at least stable in the long-run. In order to incentivize the postponement of retirement, early retirement deductions would be introduced, as well as incentives to remain in the labor market after reaching retirement age. The minimum contribution rate would be at least 15 years in order to make sure that people in working age do not drop out from the formal labor market after a short period of time.

The benefit level provided by the first pillar would range between at least 40% and 60% of the average gross wage. However, when adjusting the benefit level, the development of further life expectancy would be taken into account. In order to cushion the implicit decreases in the benefit ratio of first pillar pensions, capital-funded elements would be introduced. In 2020, private households' net financial assets needed to amount to 210% of GDP like in Canada to rank among the top ten in this sub-category.

Last but not least, the necessary pre-conditions to build-up financial assets, i.e. access to financial services, would be provided for. In all the top ten countries, 99% of the population aged 15 and older had an account at a financial institution. Life-long learning, initiatives for healthy aging and labor market reforms would also enable people in the age group 65+ to stay active on the labor market. Otherwise, any increases in retirement age would be nothing but a hidden benefit level cut.

In this context, the current Covid-19 crisis could offer a way forward for pension reform. In just a few years, baby boomers will start to retire en masse, putting pension reform back on the agenda with a vengeance. In this context, the drastic measures taken to recover from the Covid-19 confinement shock could embolden policymakers to finally take more courageous steps when it comes to pension reform as well.

## APPENDIX

### Methodology

The Allianz Pension Index (API) consists of three sub-indices, which are differently weighted (see respective weightings in brackets)

- *Financial and demographic starting points* (20%)
- *Sustainability* (40%)
- *Adequacy* (40%)

These three sub-indices are based on five categories and eleven sub-categories taking into account in total 30 parameters (see Figure 22). Each parameter value is rated on a scale of 1 to 7, with 1 being the best grade. The bands defining each parameter's grade are chosen in a way that the grading results of all countries are normal distributed. This implies a relative judgement. By adding up all weighted subtotals, the API assigns each country a grade between 1 and 7, thus providing a comprehensive view of the sustainability and adequacy of the pension system of a respective country compared to other countries (see Figure 23).

### The sub-indices in detail

The sub-index *Financial and demographic starting points* takes into account two major exogenous factors effecting the need for further pension reforms:

- *Financial Leeway* (40%) - The financial leeway is determined by the current general government gross debt (30%) and today's public spending for old-age benefits (70%) in percent of GDP.

- *Demographic Change* (60%) - In order to quantify the dimension of future demographic change we take into account the old-age dependency ratios of 2019 (10%) and 2050 (40%) as well as the percentage change of these two ratios (50%).

General government gross debt and nominal GDP data are extracted from the IMF World Economic Outlook database, source of the public spending for old age data is mainly the International Labor Organization supplemented with data from national statistical offices and public pension insurance providers. All population data is derived from the UN World Population Prospects database.

The sub-index *Sustainability* assesses, if there are built-in mechanisms that cushion the pension system against the impacts of demographic change, based on the categories

- *Preconditions* (60%) - The category *Preconditions* is split into the sub-categories *Retirement age* (80%), in order to assess if adopted increases of the retirement age are high enough to compensate for the expected improvements in further life expectancy, and *Minimum contribution period* (20%).
- *Finances* (40%) - This category consists of the sub-categories *Financing* (70%) and *Pension Formula* (30%).

Data sources are the European Commission, the OECD and the respective national social security administrations and providers.

The sub-index *Adequacy* is based on two categories *First Pillar* and *Other Pension income*, which are also split up in further sub-categories:

- *First Pillar* (50%) - This category takes into account the *Coverage* (70%) and the *Benefit level* (30%) of the pension system.
- *Other pension income* (50%) - This category is based on the sub-categories *Second Pillar* (20%), *Financial Assets* (70%) and *Gainful Employment* (10%).

The index is based on publicly available information of national social security administrations, ministries of finance and ministries of social affairs as well as on including publications of the European Commission, OECD, ILO, UN and World Bank as of March 2020.

## Allianz Pension Index 2020 —Weights

Financial and Demographic Starting Point	20%
Sustainability	40%
Adequacy	40%

Financial and Demographic Starting Point	20%	Budget and Demographic Change	100%	Financial Leeway	40%	Budget Deficit	Public Spending for Old Age	
						30%	70%	
				Demographic Change	60%	OADR 2019	OADR 2050	Change 2019-2050
						10%	40%	50%

Sustainability	40%	Preconditions	60%	Retirement Age (Men/Women)	80%	MC/TSIR (2020)	MC/TSIR (2050)	Change MC/TSIR (2020 - 2050)
						10%	40%	50%
		Finances	40%	Minimum Contribution Period	20%	MCP (Men)	MCP (Women)	
						50%	50%	
				Financing	70%	Financing Method	Contribution rates	
						25%	75%	
				Pension Formula	30%	Early Retirement Deductions	Demographic Factor?	
						50%	50%	

Adequacy	40%	First Pillar	50%	Coverage	70%	Coverage 65+	Coverage 15-64	Obligation?
						30%	60%	10%
				Benefits	30%	Gross Benefit Ratio	Minimum Pension	
						80%	20%	
		Other Pension Income	50%	Second Pillar	20%	Financing Method	Obligation?	
				80%	20%			
Financial Assets	70%			Access to Financial Services	Old-age as Savings Motive	Private HH Net Financial Assets	Gini Coefficient	
				30%	10%	30%	30%	
		Gainful Employment	10%	Activity ratio 65+ (M)	Activity Ratio 65+ (W)			
				50%	50%			

## Allianz Pension Index 2020 — Results

	API 2020		API 2020 Financial and Demographic Starting Point		API 2020 Sustainability		API 2020 Adequacy	
			20%		40%		40%	
	Rank	Result	Rank	Result	Rank	Result	Rank	Result
Argentina	59	4.46	22	3.50	58	4.58	56	4.82
Australia	6	3.13	10	3.04	16	3.34	22	2.96
Austria	34	3.84	65	5.50	51	4.45	10	2.39
Bahrain	65	4.70	27	3.68	56	4.55	62	5.37
Belgium	2	2.92	46	4.26	3	2.85	8	2.31
Brazil	43	3.98	58	4.82	45	4.34	32	3.20
Bulgaria	9	3.16	32	3.80	2	2.67	36	3.33
Canada	10	3.24	20	3.42	26	3.80	12	2.59
Chile	53	4.22	30	3.72	60	4.61	47	4.09
China	11	3.25	46	4.26	5	2.94	26	3.06
Colombia	41	3.93	30	3.72	41	4.13	43	3.84
Croatia	46	4.05	55	4.70	38	4.10	40	3.69
Cyprus	48	4.08	57	4.80	61	4.64	30	3.16
Czech Republic	12	3.26	42	4.16	4	2.86	34	3.22
Denmark	3	2.96	17	3.32	13	3.24	11	2.51
Egypt	36	3.88	12	3.12	20	3.48	54	4.66
Estonia	25	3.53	28	3.70	42	4.16	19	2.81
Finland	21	3.49	34	3.84	35	4.02	17	2.79
France	51	4.16	59	4.84	64	4.76	34	3.22
Germany	26	3.56	56	4.76	21	3.52	24	3.01
Greece	58	4.43	70	6.10	52	4.47	39	3.56
Hong Kong SAR	39	3.92	36	3.86	46	4.35	38	3.52
Hungary	45	4.05	54	4.68	59	4.59	31	3.19
India	38	3.91	23	3.54	31	3.87	51	4.15
Indonesia	28	3.59	15	3.20	1	2.48	60	4.89
Ireland	14	3.31	41	4.12	9	3.14	27	3.08
Israel	22	3.51	8	2.98	53	4.49	18	2.80
Italy	18	3.39	70	6.10	10	3.17	6	2.25
Japan	24	3.52	66	5.52	38	4.10	3	1.96
Kazakhstan	20	3.48	7	2.94	33	3.88	37	3.36
Kenya	55	4.33	4	2.84	43	4.25	61	5.15
Korea	29	3.59	62	5.22	8	3.12	35	3.25
Kuwait	62	4.59	35	3.84	67	4.96	53	4.59
Lao P.D.R.	63	4.63	3	2.62	28	3.85	69	6.41
Latvia	13	3.27	26	3.64	17	3.36	23	2.99
Lebanon	70	5.45	49	4.32	54	4.50	70	6.97
Lithuania	27	3.57	38	3.94	12	3.22	42	3.74
Luxembourg	15	3.35	40	4.04	39	4.10	7	2.27
Malaysia	61	4.52	5	2.86	70	5.72	51	4.15
Malta	32	3.74	52	4.58	40	4.12	21	2.93
Mexico	35	3.84	15	3.20	7	3.12	58	4.89
Morocco	60	4.47	34	3.84	18	3.36	67	5.88
Netherlands	7	3.13	39	4.00	30	3.87	2	1.95
New Zealand	4	3.00	21	3.46	27	3.83	1	1.94
Nigeria	64	4.63	1	1.46	57	4.58	68	6.27
Norway	8	3.16	16	3.28	29	3.86	10	2.39
Peru	31	3.72	15	3.20	34	3.98	41	3.71
Philippines	37	3.91	2	2.44	25	3.71	57	4.85
Poland	54	4.27	61	5.10	36	4.05	46	4.08
Portugal	49	4.12	70	6.10	49	4.40	20	2.85
Qatar	66	4.78	19	3.40	66	4.87	63	5.38
Romania	50	4.12	37	3.88	48	4.40	44	3.98
Russia	33	3.78	25	3.62	22	3.56	49	4.09
Saudi Arabia	67	5.03	10	3.04	68	5.32	65	5.74
Singapore	30	3.61	53	4.60	62	4.66	5	2.08
Slovak Republic	17	3.36	44	4.24	11	3.18	28	3.09
Slovenia	47	4.07	63	5.28	50	4.43	29	3.12
South Africa	41	3.93	6	2.88	24	3.59	55	4.80
Spain	44	3.98	67	5.88	47	4.39	14	2.63
Sri Lanka	68	5.18	32	3.80	69	5.61	64	5.46
Sweden	1	2.91	18	3.38	6	2.96	13	2.62
Switzerland	23	3.52	43	4.18	63	4.67	4	2.05
Taiwan	19	3.43	60	4.96	15	3.33	15	2.77
Thailand	52	4.18	47	4.28	44	4.33	45	3.99
Turkey	42	3.95	50	4.34	19	3.40	52	4.30
Ukraine	56	4.36	51	4.56	55	4.52	49	4.09
United Arab Emirates	69	5.29	64	5.28	65	4.77	66	5.83
United Kingdom	16	3.36	24	3.58	23	3.57	25	3.03
United States	5	3.04	11	3.10	14	3.29	16	2.77
Vietnam	57	4.37	48	4.30	32	3.87	60	4.89



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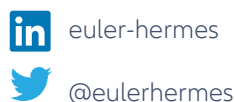
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