

*Q. I wanted to ask another question about too much money chasing available investment opportunities. I think you mentioned a return of \$100 trillion being needed to reward the total sum invested. How does this figure compare to the size of the economy if it is looked at over, say, the last 100 years?*

A. You are very astute in your questions, but first of all a correction to what we might have said. It is \$100 trillion of assets, not returns. The return being sought would equate to about \$11 trillion.

The US stock market is worth 200% of GDP currently. If we take as a proxy the value of our investment assets as largely proportional to the size of the stock markets, in 1971 the Buffet ratio - the ratio of all US listed companies to GDP - was 76%. This means we have grown by a factor of 3. The average over the whole period is about 82%. As it reflects stock market valuation, it is quite volatile and reflects the crashes we have experienced. Ahead of the 2008 crash, it was at 105%, and bottomed at 53% at the nadir of the crash.

*Q. My second question is about Ponzi concepts. It appears to me that many investments effectively rely on new investment money to provide their returns. This is particularly true for those seeking returns in the form of capital gains. Quantitative Easing was a way of feeding new money into the system and the response was a rise in asset prices. All this is very simplistic of course, but as an amateur it appears to me that the flow of new money is essential to the return on investments.*

A. The traditional idea of investments is to become the owner of a business and earn an income from the revenues obtained by the activities. This allows you as the owner to enjoy a future where as long as the business is successfully able to continue, you will gain a living. Businesses are meant to be perpetual, and as an owner, the incentive is to manage it so that its future is not put at risk by making the decisions that will ensure it and the environment it functions in continue.

A business carried out in this way is valuable to the investor and has value regardless of whether there is a someone else to sell the ownership to in the future. It is therefore not a Ponzi scheme in principle. The better the earnings, the sooner the owner is able to recuperate the amount paid, and begin to earn additional income.

The analogy is buying a property to rent out. The rent provides an income and there is value to it even if the property is never sold again.

The Ponzi scheme aspect comes when the businesses have no profits, and therefore nothing to pay out to the owner as income. Amazon, for example, has not been profitable for most of its life. Even now, with the discussions of the G7 agreement to cooperate in taxing tech companies, it is unlikely to be affected because it does not make any money.

Its share price, however, can rise if people believe that there will be others who will buy it. This comes by the company promising to be more valuable in the future. So Amazon's AWS, its hosted web based computing services, is a major reason why its worth has increased so much in the recent years as investors believe that at some point, it will dominate computing and finally become profitable.

This means we buy Amazon not for any income, but for the belief that it will eventually provide income for the investor, and as long as that belief continues there will be someone who will buy it at a higher price from us.

This is the Ponzi scheme element. The value of Amazon comes from the belief that someone else will see it as more valuable, but this is supported by the business itself expanding into more areas. Of course, this sort of growth based on expansion can only be realised by exploiting the planet's natural and human resources more, and given it is not profitable with what it is currently doing, this has to be to an extent significantly worse amount than what is happening now.

The Quantitative Easing element, or QE, has to do with the way businesses are valued. Quantitative Easing was introduced in the aftermath of the 2008 Global Financial Crisis in an attempt to support businesses and boost activities. The easing element means making money more easily available, and the quantitative element means targeting specific numerical levels of interest rates.

The standard way to estimate the value of a share of a business starts by projecting and estimating all future earnings of the business and then calculating what those cashflows are worth today. The level of interest rates plays two roles in this.

First, it provides a precise comparison with what you can earn if you simply kept money in the bank. So, if interest rate is 5%, then keeping 95c in the bank will give you \$1 in a year, for example; and keeping 90c in a bank will give you a total of \$1 also but in two years. If you expect a business to pay you \$1 in a year's time and another in two years' time, this would be the same as keeping 95c and 90c in the bank today, making the value of the business worth \$1.85.

The second role interest rates therefore play is a consequence of this. If the business is unable to produce 5%, then you would prefer to keep your money in the bank if finance is the only reason for the investment. Interest rate is a hurdle for judging if a business is sensible to invest in or not.

Under Quantitative Easing interest rates were deliberately and systematically reduced to zero, very close to zero, and even negative values across the global economies. The consequence under the first role is that the values of all businesses were lifted up. This price increase became seen as validation that future promises were worth more and more, and so attracted more investments. Further investments reinforced the price move, and in a perverse way, businesses which do not produce any profit or have any plans for any profit became much more sought after as they sold a story of a high growth future, whereas those businesses which had steady profits became neglected. We began to buy into a Ponzi scheme.

The consequence of the second role is that businesses no longer had any hurdle rate of return for them to look sensible as investments. You can raise money to start any business as long as it promised high growth in the future and because people earned nothing if they kept in their money in the bank. In fact, Quantitative Easing pushed interest rates to negative levels and pension funds who invested on our behalf faced paying banks substantial amounts in interests, in addition to traditional bank charges.

For over a decade, businesses have been driven by central banks to increasingly exploitative practices, and investments have been driven into becoming Ponzi schemes. The investment industry recognises this, and has given it an acronym for the period, TINA – There is No Alternative.

In terms of sustainability, it means we are exploiting the planet and its natural and human resources for free. Central bankers, including the current Federal Reserve president, have repeatedly and publicly stated it is not in their policy remit to consider the sustainability consequences of their policy actions. The sole purpose of the quantitative easing is to make rampant exploitation and Ponzi schemes the outcome to support portfolio wealth.

Central banking policies have tremendous impact on sustainability and the ability for people to act ethically. By creating money in the way they have, it accentuates the sense of falling behind for everyone. This also has an acronym in the investment industry to explain the actions of investors in this period: FOMO – fear of missing out. It is entirely created by central bankers, who do not answer either politically to governments or democratically to electorate. It is exactly as L. Frank Baum's allegory of central banking monetary policy in *The Wonderful Wizard of Oz* of someone who acts behind the screens to try and control to world with the best intentions but leaving the planet to suffer its consequences.

*Q. You talked about governance. I wonder if governance can be seen in two ways. There is governance by shareholders and also governance effectively by policy and regulatory action. As an investor I am motivated by my own aspirations, as you talked about when taking your ideas to pension funds. Relying on me as owner for changes in governance is going to be hard no matter how ethical I want to be as an investor. Society exerts governance through policy and regulation although globalisation can dilute its impact.*

*Like most small investors my investments are primarily in funds – I think I am invested in about 20. As such I do not have a sense of ownership of the underlying assets and am unable to participate in their governance. There is almost a sense of stewardship by fund managers who exercise the powers of ownership but without being the beneficial owner. This further complicates and concentrates ownership but dilutes governance by the beneficiaries of these investments.*

A. You are spot on, and on both points. Taking the latter first, when Richard and I started as investment managers, we were not concerned with having a voice in how the world needs to be. Our role was to ensure the money entrusted to us were safe and preserved its value. Wherever possible, we were charged to increase its worth as long as that did not put the return of that money to the investor at risk. We were not concerned with how businesses should work, but only that the allocation of the money was sensible. If businesses did not look like they would genuinely produce value, money should be kept in the bank.

Today the move is to pretend that the pension and investment managers are the ultimate deciders of the shape of our future. This is wrong. We, the investors, are the only ones with skin in the game. It is our future which is destroyed or our money which is lost.

As for the first issue, the complications of governance for individuals, there are many examples where we as individuals decide on matters which are hugely complex and where the details are beyond our comprehension. Medical treatments, for example, have evolved to accept that patients who may not understand the biology or the medicine, have the ultimate say for whatever the reason they may choose. Just because something is complex does not mean lay-opinions do not count. It does mean there is a need for engagement and education.

As a starting point to governance, most funds today are hugely diversified. You through your various funds almost certainly own a share in every major public business. This means, for example, you own Volkswagen, Tesla, and Ford. It also means you own Hertz, Avis, and Europcar. You also own Virgin trains, Getlink (Eurotunnel), FirstGroup (who owns South West Trains, many bus companies).

When you are the owner of all these companies, does it matter more to you that they should strive individually and compete to dominate against each other? Or that you as the owner would prefer telling them to work together to give you better transport?

At the end of the day, when one dominates another, the earnings to you in total is unchanged. The transport is likely to be worse. But when we can tell them to work with each other, the transport achieved can be genuinely better, and the chances are income is still possible.

This is the essence of the governance question. It needs the individual owners to recognise that we own all the companies. Do we want sibling rivalry to destroy our planet, or sibling cooperation to build a home? As the owners, we should have a say.

Investment managers act in their current practices to encourage sibling rivalry. It is the economic and the current leadership and executive education models. They all lean towards the idea of merit by doing things, and a reward system that requires individuals to be identified. That is what sibling rivalry is all about. But as the owners, we can adjudicate, intervene, and break up the fights.

So absolutely, the details of governance are intricate, but the big picture of what governance should achieve is readily understood by all – we want a better world so we can be our better selves. We just need to start by recognising we own all these businesses.

Interestingly, there is really very little understood about how businesses complement each other rather than compete against each other. We know more about how leaving a field fallow will allow weeds to re-fertilise the soil than we know about how businesses can function to provide a healthier overall environment. It is like we believe our business world has to be one which has to have constant artificial fertilisers to keep it growing, which is where policies and politicians come in.

Policy makers have a really important role in this. They intervene too much to try and keep individual businesses supported when it is the health of the whole that matters. We just do not have the academic understanding of how businesses work in that way.

Policy actions try to promise comfort and security for individuals, and they have a pattern of failing to do so. When they fail, unfortunately, we become more fearful of our own futures. It is simply not feasible to fund policies that try to support our every need, and it is better to recognise that people need meaning in their lives, not just promises of comfort and security.

Sustainability is a holistic problem and needs a holistic thinking that goes beyond blaming and being defensive. It needs us to seek proper governance so we can have the genuine debates.

*Q. Fascinating talk. Thank you. Though provoking. Can you comment on social sustainability which is one of the three legs of sustainable development? Investment appears to be concentrating wealth in the hands of those who have wealth. Is that sustainable? Is it even possible to have environmentally sustainability without social sustainability?*

The ESG framework is merging with the UN's 17 Sustainable Development Goals and 169 targets. The social aspect in the UN's SDG goals cover areas like poverty, hunger, health, education, gender equality, clean water, work, justice, and something broadly called partnership which is meant to be the idea that we all occupy the same earth.

ESG investing has largely focused on the environmental aspect as that most directly leads to new technology and associated new investment opportunities. There have more ESG bond issuances – that is, companies borrowing money to finance sustainability initiatives – in the social area as a result of the Covid pandemic. Amazon recently for example issue such a bond where it claims to include improving opportunities for its under-represented employees.

These are things we should be doing anyway, and there is an argument that it should not require special terms to do so. ESG therefore allows for legitimising doing good on the one hand while the problems persist on the other. A company, an investment fund, a manager now highlights all the positive aspects of their ESG activities and leave untold all the other aspects of their activities.

This brings to the inequalities you mention. ESG investing does not change that especially when it is touted, as it is, that returns will not suffer. As we mentioned, Jeff Bezos may be a multi-billionaire with Amazon, but that is only because we are multi-trillionaires thanks to the same company.

We live to hoard resources in our long-term savings and investments. As long as we need to do this, there is no way for the distribution of resources and wealth we may want. This is deeply embedded through our social psychology in our economic structure. No matter how much we have, we are told constantly we do not have enough to secure our own future.

About the concentration of investments, PWC estimated that the total wealth of those with over \$1mm is a little over \$70 trillion. The \$100 trillion we talk about largely come from those who are not part of this group. Forbes' 2020 listing of billionaires come to a wealth total of about \$8 trillion. It is a lot of wealth concentrated in the hands of 2,095 people, but in aggregate the wealth is distributed among the people in the wealthier nations. We who live in Europe, America, developed Asia, and other OECD countries have to stop thinking this is the effect of some bad rich actor. It is our savings that is hoarding resources and making them scarce and unavailable for ourselves.

As for whether this is sustainable, we firmly believe that it is not. There are no more lands we can conquer, people we can enslave if we want to claim we have any sort of an ethical basis to our lives. This means we cannot have all that the comfort and security we want for our future, and will have to accept there will be more uncertainties. And on that note, we do feel very strongly that all the efforts to preserve portfolio wealth will be self-defeating, and in fact the more policies are driven to preserve it, the greater our leverage on our scarce resources and put us at greater catastrophic risk.

So what does this mean for environment sustainability? Norway spent substantial amount of money in a program to reduce deforestation as a way prevent greenhouse gas emission in Asia. After 10 years, their government audit office did a thorough audit and found that it largely failed, pretty much on all points. Among the issues is the fact people on the ground took payments as incentives, and then simply deforested the areas which were not covered. The social pressures drive the environmental pressures. It is our belief that if we try to tackle the environment pressures without dealing with the social pressures, these initiatives are doomed to fail. People need to be able to feel they have a meaningful living before they can live without fear. Once we start to fear for our future, the environment really has no chance.

*Q. The natural question is with investment and savings forming the foundation of our economic models, how do we achieve the fundamental change to achieve a more sustainable future?*

I have been very fortunate in being able have a living that allowed me to save. Most of us do not earn enough to save. If you imagine saving 10% of your net earnings each year, after 1 year, you will basically have one month's buffer. If you want a year's buffer, which you may need if are thinking of taking a year off to retrain, you will need 8 years of saving.

So, the problem with change is how can I feel I may have an economic income in my future if I don't have my savings. This is an economic connection. What can I do that people will pay me for?

I think we used to be much better at this. Some years past I was introduced through a friend to an elderly person in my neighbourhood who had received some letters from her bank. She did not understand what they wanted, and was worried. My friend introduced me to her because she thought I could explain it. I read them; they were just circular letters, and I explained there was nothing she needed to do. She gave me £20, for my children she said.

I was embarrassed to receive it, but she insisted, saying we all have to be paid.

She came from a period where it was better recognised that we all have to be paid to have communities to rely on for support. It is the recognition of a social connection that enables the appreciation that we need an economic connection. When we can feel that there are people who would pay us for things we can do, we have a better chance of not feeling we have to rely as much on our savings and investments.

These are connections that stabilise our living and give meaning to why we live. Generally, people respond by saying that's only for one or two people, but there are so many of us that it will not be possible. This is the rethinking challenge we have to face. Is it really impossible? Or are we just locked into a way of thinking?

For one thing, it means we look differently at what we might be willing to pay for, and it also asks us to rethink how much we might for us to live on.

The other question this poses is about our businesses. At the moment, if I see a CV from 55 years old, and a 25 years old, the 25 year old gets the job. It is just how it is. This makes us worry even more about having enough and push us to savings and investments. It is why we think the biggest challenge is to enable us to stay working our whole lives. For the 25 years old today, this will likely mean working till you are a 100-years old or more. Businesses focused on efficiencies and economies of scale may have a single place for one 100 years old person, but it has no place for a population of 100 years old workers.

This comes back to our investments. As owners, it is our choice to decide whether we make it possible that 100 years old workers can work constructively with 25 years old workers, or whether we push for higher returns so that we can retire at 70 and live to be the idle 100 years old.

#### *Q. Will a 3-day weekend ever be the standard expectation?*

There is a bit in Marvel's Agents of S.H.I.E.L.D when Leo Fitz the brilliant young scientist and Jemma Simmons his partner asked what they would wish. Leo replied, "an extra day between Saturday and Sunday".

I guess that is not what you mean by a 3-day weekend, but rather to have 4 working days instead of 5. This incidentally is what Unilever is trialling in its New Zealand operations. There are 80 people who work there. The experiment is done in conjunction with academics who will assess the benefits and impacts from multiple perspectives, and the people important have a say about whether this is what they want or not. Those who prefer can keep working five-day weeks.

This is the important point. We can have 3-day weekends, 4-day weekends, even 5-day weekends. I had someone work for me on a 3-day weekend basis, and he was extremely productive. I am pretty sure he would have been half as productive over the long-term had he worked a 2-day weekend. But to be honest, I was totally unconvinced at the beginning.

The point to why we become unsustainable is that when we all do things in the same way, in the same pattern, the resources we need become very concentrated and too much to be met. It is the same soldiers marching in step when crossing a bridge. The impact is too much for the bridge to bear. The same bridge can easily cope with more soldiers crossing, as long as they do at their individual pace.

The point is not to make everyone work with 3-day weekends, but to allow each to find the pace that fits them. This way, we are likely to diffuse our resource needs and make it possible to be more sustainable.

Of course, all of us savings and investing for the same thing is like the soldiers' march and why it makes us unsustainable.

*Q. What reactions have you had from the investment community?*

A. Answered in the webinar, please refer there.

*Q. How do you address the game theory risk that greedy capitalists just leverage off the lower return expectations this form of sustainability will accept?*

A. The problem is the central banks. Okay, let's explain that bit. Fundamentally, we all fear falling behind. When we sense this happening, we push forward and we compete. To stay ahead, we become the "greedy capitalists".

There is an understanding from behaviour ethics – a modern branch of moral psychology that says we basically have an innate gut feeling for the right thing – is that we prefer to be our better selves. We are more coherent, more consistent, and we live better with more meaning.

Fear drives us away from this.

Central banks have made money so available that we see everyone else getting better off than ourselves. This may be by trading GameStop, buying Bitcoins, if it is over this year, or buying property, stocks, if it is over the past decade. All these are facilitated by the ability to borrow at negligible costs.

Policies really do matter when it comes to levelling the playing field. For sustainability, the field is tilted against the planet. When it cost nothing to borrow to exploit it, then the planet has no chance. Those who are able and least concerned about borrowing in this way will come out ahead, and leave the rest of us fearful, urging us to join.

Aquinas had four conditions for assessing if something is good. They are: is the essence of thing itself good, is the implementation good, is the outcome good, and is it likely to create harm. Today, we tend to think of something as good if any of the conditions are met. For Aquinas, and more fitting to a world without resources, all four conditions have to be met.

How does zero interest rate test on these conditions? Zero interest rate means there is no value to waiting for possible better opportunities. This is non-sensical, especially when we think we are running out of resource capacity. It makes more sense to make sure we know enough before we commit. It is like hiring the first person who applies before seeing any other candidate. What about the implementation? Zero interest rate punishes people who are cautious and rewards the reckless. What about the outcome? Zero interest rate promotes unconstrained exploitation of our resources.

Finally, is there a chance harm will arise? The expansion in inequality in the past decade is a consequence of the policy, the point of the question of “greedy capitalists leveraging off lower returns” are clearly harmful.

What can we do about it? First, policies really need to put the planet as a participant on a level playing field. We do not do that. We treat the planet as the playing field. When the game is over, the field is trashed. This is policy level considerations.

The other thing is to recognise the ethical element. Just because there are greedy capitalists it does not mean we have to follow and be equally greedy capitalists. We can listen to our gut feeling, express our thinking, and follow a path that lets us be our better selves. This also means advocating policies that do not punish us when we do this.

*Q. I'm on the right of your slides and have disinvested in fossil fuels etc. I've been retired for 20 years and work pro bono. My savings are intended mostly for charities including Kings. I am trying to persuade other organisations to disinvest in fossil fuels. Am I barking up the wrong tree?*

I would say that as you have already divested, use your efforts to convince existing owners not to divest. But to the right governance pressure to change how oil is used.

Divesting is troublesome. I hope the following analogy will help explain. Suppose your friend is Pablo Escobar, and he is finally getting the message you have been telling him for years that drugs are bad. He is now convinced and wants out. What would you advise him to do?

He can sell out of his business and take the money. He can then live without having to worry about being involved. But who is going to buy it from him? With certainty, this will be someone who wants to continue the business and cares less about the consequences than he does. The new buyer is not looking to make drugs good but to profit from it.

We already saw reports last year of oil assets moving into private hands in hundreds of million dollars clips. These cannot be controlled and is the result of the divesting. We split what is owned by us in a handful of major organisations into thousands or tens of thousands of small owners, who each will see their parts as too small to matter and therefore it is okay.

It sounds great to divest, but all it means is we are washing our hands. Did Pilate make a genuine attempt to save Jesus? Or was it just so he could rationalise it as not his fault?

We often make wrong business decisions, but being good owners means living by the consequences and dealing with the consequences. We have responsibilities.

Equally, oil still has important uses. A recent article published in the journal *Nature* emphasised that a “blanket ban will entrench poverty in regions such as sub-Saharan Africa, but do little to reduce the world’s carbon emissions”. As owners, we can choose who we sell to and at what price. If we really want to reduce emission now, rather than propose reducing emission in a decade’s time, as owners, we can choose to sell oil at much higher prices to deter the fuel’s use. We can differentiate also between selling to private cars and selling to ambulances. We can do this because we are the owners.

Finally and always our issue on governance – the management of all the oil companies work for us, we do not have to plea with them. They are, afterall, our employees.

As for working *pro bono*, I would say that taking a nominal payment would help someone who cannot afford to work *pro bono* to ask to be paid. It could be as little as a pound. It helps to change the mentality.

*Q. The received wisdom in the company boardroom is now focusing on sustainable growth. How can we ensure that 'growth' includes a focus on purpose and meaning and is included in the definition of success?*

Article 1 of the OECD's convention states its aim is to achieve the "highest sustainable growth". The problem is we only know something is unsustainable when it ceases to be sustainable.

This applies to corporate policies as much as to the OECD countries and therefore if a company claims to aim for sustainable growth, we should take it to mean it is as likely to be unsustainable as sustainable.

A good steady business does not necessarily need to keep growing. Management teams promote growth in the current set up because their compensations are typically tied up with it. Share awards and options provide benefits only if companies grow. They are usually tied to target share prices and so on. They beg the question of incentive alignment.

Share awards were intended to align management incentive with shareholder's, ie, owner's incentive. This works when the owners, us, care only about profits and not how it is achieved. For us as a shareholder, a company can continue to pay sensible income without its share price increasing at all. It can continue to give the world useful products and engage its workers to do so. Growth can but do not need to happen in these cases.

As for the question of purpose, this is something that is only answered when we look at what it has done over a long time. Has my life been purposeful? I cannot tell that from a single moment, or a short period. I can reflect on it and ask over the past decade, has it been purposeful. If I am being honest, I can only say that of myself when I can include periods of failures into the consideration.

The biggest challenge for companies to incorporate purpose is honesty. When things happen well, they often happen because external circumstances are favourable. It often has less to do with our own efforts than we claim. When things go bad, how we respond and how honest we are at examining our own culpability will tell us whether we are true to our purpose or not.

We will make mistakes, and companies will make mistakes. It is not about whether we get things wrong, but it is about whether we can be honest.

Most companies do not have the sort of mortality and morbidity review processes that hospitals and medical departments use to examine, openly and frankly, what went right and what went wrong. In our business world, the threat of legal consequences for admitting an error makes such practices hard to be accepted. However, if honest admission of fault is not possible, it means we can never be honest about purpose. For this to happen, we also need to be more tolerant that there may be mistakes. No manager is ever going to be willing to be honest if it means having to resign if the slightest thing that goes wrong also goes viral.

*Q. Surely the key variable is population. If population growth continues in a world of finite resources, we're finished. I'd be interested to know what you think is the correct approach to investment in the*

*unlikely event that we succeed in managing a humane reduction in the human population of the planet.*

First of all, our thesis is that there is, at least currently, sufficient resources for us all to live if we do not need to hoard for retirements. Whether we want it or not, economics will force us into working for longer. The sensible thing to do is to anticipate this by some planning so that we will have the jobs that engage us, positive interactions rather than competition between the generations, and social connections that help us to face this. Choosing to plan for this over saving for ourselves is the ethical element. If we can make these connection work, the environment necessarily becomes incorporated because we do have to live on the planet.

What would a correct investment approach look like? First of all, we believe that ownership matters and do not hold to the idea that a government ownership of all businesses is the answer. We need our variety of opinions that allow for many different shades to how businesses work. This enables a range of economic possibilities so we may each have a place.

Thomas Malthus wrote in the late eighteenth century about how population will grow to the limit of whatever the resources at the time will allow. Assuming we have the humane reduction in population, the sensible assumption is afterwards, our population will grow from that point back to whatever the limit supportable by the resources will be. Malthus also described a distinction between productive and non-productive investments. Productive investments are those which lead to an increase in the availability of resources. The ideal world is one where we will be able to maintain our population exactly at the point where innovations will allow more resources to be available at every step. More likely, we will find ourselves at in breach of our resource limit at some point.

So, in that world, how should we invest? Richard and I discussed for some time what our advice might be to our own children as an investment guide to young adults. We want to own businesses and have the governance to manage them as cooperative entities rather than competing entities. We need them to change from focusing on leverage and efficiency of scale to focus on providing an environment where there are opportunities and purposeful engagement for people. We need to be able to have savings, so that we can make necessary changes in our lives, such as retraining, take a career break, and to meet unforeseen events, and we need them to provide sufficient income to all of us so that we can accumulate this in a reasonable time.

There are basically two scales by which people are paid. One, relevant to the investment, consulting and brokerage industries, is based on the amount of money involved. The other, relevant to nursing, doctors, teachers, shop workers, and so on is based on how much it costs to live. The latter group is basically the group labelled as essential workers. This discrepancy creates a lot of problems when we are at resources limits because pay comes from exploiting the scarce resources. So for our investments we make, if we are to have meaningful job opportunities, we will need to address the discrepancies between these two scales of pay in our investments.

Finally, the term invest itself may not be right. Our personal development is sometimes described as life-long learning. The outcome is better living in developing a better sense of who we are, what we genuinely need, and how we can create necessary social and economic connections. Invest suggests the outcome is to be measured in returns. It implicitly puts more focus on growth as a target than we may want to.

At the current moment, both Richard and I believe that asset valuations are unreasonably stretched and the chances are financial investments do not hold the returns they promise. As a young person the best thing to do at this point with money is to spend some of it on their own development. We

can think of it as investing in yourself, but the target is not a return, but the ability to have a better and more meaningful living. This may be a skill that will help with obtaining income, or to build relationships that will give you the intimate connections that will help you through, or so you can be more aware of who you are so that you can face problems ahead more positively.

*Q. How do we transition to a world with less asset returns without some unintended consequences eg possibility of even further spatial and individual inequality, social unrest etc*

The biggest and a realistic risk in our minds is that we will face investment portfolio collapse. Central bankers, and politicians to a lesser extent, are unlikely to be able to continue their efforts to avert this indefinitely. If this happens, we will see severe social unrest and worst inequality. Poor people always suffer more in a crisis.

However, a friend pointed out with there are many examples of people who suffer significant drops in income, manage, and do well. The drops may come about as a result of relationship breakups, changes in employment, or even political circumstances such as refugees. There are many positive stories of this happening, and it should give us hope that we do not need our financial assets as much as we may fear.

The ideal is to transit without the crisis. This what Richard and I would like to engage in to facilitate. The starting point is to make it possible that we can work for longer in a way that is suitable to our physical and mental development. If this is possible, then we will be more ready for lower asset returns, and the inequalities and divisions need not be as augmented. If we do this really well, we may find that we can reduce the impact of those inequalities. In the end, our contentment reflects as much the purpose our living has for us as how comfortable the living may be.

Being able to work for longer fundamentally means older people have to engage with younger people more actively and positively. My wife, who studied Japanese and social anthropology, researched back in the 1990s about how Japanese elderly were integrated into kindergartens and primary schools. This gives them a connection with the youngest generations and their families. The social connection allows other ideas to come about. Without social connections, we are condemned into an economic thinking that drives us into individual silos and therefore more likely to lead to bad, unintended consequences.

In short, we need to consider our social connections, how to rediscover and re-establish them in a way that will stabilise our lives when we may not our investment returns.

*Q. Where are the levers of powers to make for change?*

The Power of One has to be stated. This is our ability to do the right thing, and influence others to do so. In the end, however others may behave, if we are unable to convince ourselves to rethink, then we have little chance to make others rethink.

Political change is important. We need to keep pressing on the political agenda, but we need to be clear what the agenda we want actually is. The discrepancies in the scales of pay is an issue. It is not going to solve it by making everyone's pay higher. That will only lead to outright exploitation of more resources and higher prices for all. What needs to be debated is why some jobs need to be paid

according to the amount of money involved, and why others are paid on the basis of the cost of living. Change here will only come when it is possible for people to feel that the general provisions they need are provided and to a good quality. For example, in the UK, there is a 40% premium in the price of houses in London close to top state school versus other houses further away. In other parts of the country, the premium is lower, but is still 10% in the areas with the lowest house prices. This premium comes about because there is too much discrepancy between the quality of different state schools. If we want to make pay more equal, we need to start by make schools more equal.

How do we get the money to fund all these things without increasing the exploitation of the planet. We can't.

This means we need to rethink how to encourage our communities to regenerate by understanding what activities can catalyse it, what businesses work better together. In the old days, a market town flourishes because having a market allowed for other businesses to develop. It is not necessarily that things need to be local, but we do need to understand what connections empower us to be better and develop them.

*Q. Thank you David and Richard. Curious as to your thoughts on digital assets, crypto and decentralised finance from a sustainability point of view. For instance, does it hold purpose and meaning? Is it 'good' or evil; if good, should we be investing into it? Thank you!*

Crypto assets are a Ponzi scheme and have terrible social and environmental side effects. For any who may not be aware of digital assets, crypto and decentralised finance, these are innovations developed in the past ten years to function as a mechanism of monetary exchange.

The issue is they pull scarce resources from other uses which are more important. There is nothing which why provide at the moment which cannot be done with more conventional means. Furthermore, they have no fundamental basis for their value. They are like tulips in the seventeenth century at the time of the Dutch Golden Age, when it was possible for a tulip bulb to be worth more than a house. In the end, a tulip bulb is a tulip bulb and you cannot live in it.

Bitcoin's main use is to pay random ware attacks. When the value of bitcoins are traded up, it makes attackers wealthier, and encourages more activity. The recent attack on the US pipeline infrastructure shows how dangerous these attacks can be.

El Salvador recently announced it will use geothermal energy to mitigate the environmental damage from bitcoin mining. This sounds great and is hugely supported by people favouring these assets. However, there reality if we are to do this is to keep renewable energy away from essential activities, like running a hospital, for the same of a vanity product.

With global warming, the most important task we have is to reduce the amount of greenhouse gases we are emitting now, not in the future. Any gas emitted into the atmosphere will stay there effectively forever. This means reducing our energy usage immediately. Allowing non-essential cryptos and digital assets to use up renewable energy is immoral.

We hold to Aquinas's criteria for testing if something is good. Namely, is it inherently good, is the implementation good, is the outcome good, and is there potential for harm from it? Aquinas requires all four conditions to be met for something to be good. We in our modern world generally requires any one of the conditions to be met to be good.

We see it as inherently neither good nor evil. It simply is the product of a mathematical algorithm. The implementation by and large is very bad as it drains energy resources. The outcomes are bad also. They create misallocation of capital as people chase them for their trading value and take capital away from other better innovations. The people who benefit most are people like ransomware attackers. And finally, is there potential for harm? There certainly is both in creating asset bubbles which ultimately damages our economic and social structures.

*Q. What are your opinions on funds that specialise in ESG forward investment, do you think that they make a difference or is it a case of greenwashing?*

We need innovations and investments to help us shape the world into something that will allow us to live with purpose. The problem is when do we get rewarded for the investments. ESG investments currently fall into three categories. Impact investing which have specific objectives, like reducing the amount of open fires used for cooking in Africa. ESG risk mitigation which looks to protect the portfolio from the adverse climate and social outcomes. ESG objectives which look to include only those activities which are considered acceptable within some metric.

The performance we are seeing is the result of people being interested to buy into the opportunities. They do not reflect whether the outcomes are achieved or not. With the last category, which is the largest category, there is no specific outcome that is targeted. That is, it does not promise that investing in it will reduce our global temperature.

Is all this green washing? Most firms involved have a genuine desire to provide a product that is sensible. However, no firm is able to promise on any outcome. It is like hiring a group of Spanish speakers, it doesn't guarantee I will be able to build a business in South America. Is it misleading for me to sell you a story that I will have a business in South America by simply saying I have just hired a bunch of Spanish speaking employees?

The ultimate test to us, from our investment experience, is whether the managers are rewarded ahead of the outcomes being proven. If they are, that is bad. Nothing stops them from taking the money and leaving the risks behind. This is what we see as happening in the industry. It is not because they are deliberately doing it. It is simply a consequence of too much money being naively impatient chasing this sector. As the gains continue, we see the investment as successful and mistake that to mean the outcomes are genuinely favourable.

The Global Financial Crisis came about because just this sort of reasoning, and we are still reeling from its consequences.

*Q. It is relatively easy not to retire if you are in a white collar job, but much harder in the service industry*

This is the reason why we need to rethink how our connections work, and to rethink just what how we can have economic connections. We cannot do the same sort of job functions when we are eighty that we performed when we were 55. This means we need new types of jobs and is why we need to rethink what we want from our businesses.

*Q. Investment provides a number of benefits, like health insurance - or in UK the NHS - mortgages to enable us to buy a home to live in. How do we manage without such benefits?*

For us to have less reliance on our own savings and investments, we actually have a greater dependence on a high quality NHS, better access to housing, education, and so on.

It is cheaper for us to be providing these things on a more collective consideration than for each to be competing against each other. The American health model is certainly not attractive, and leave individuals worried about just what will happen if they do not have financial assets.

However, resources being scarce means we will have to adjust our expectations.

*Q. What implications do you think your model would have for innovation?*

Answered in the webinar, please do listen to the recording.

*Q. You started out with the observation that the push for individual retirement portfolio savings stemmed from governments running out of money. So where does government taxation fit into this? Maybe we should be advocating for higher taxes and spreading the wealth and strengthening the social safety net as a sustainability mechanism.*

The 1970s saw an oil shock which reduced the UK to bankruptcy. The move for a loan from the IMF required a call for funds to the US, Germany, and other countries. Records of the time the UK cabinet discussing how the conditions of the loan meant the government would have to renege on its social contract. This demonstrated the fragility of government finances. Like today, at a time when the economy is not working, there is no tax to be collected.

The idea of taxation to resolve our inequalities has issues in a world that is running out of resources. Rich people pay tax by making more money. This ends up becoming again self-defeating as that money is made from using up the scarce resources. Higher tax on higher income simply pushes higher income to be higher still.

A person who can take home a net income of £400,000 will ask for higher gross pay when the tax is increased, simply because the costs stay the same. The private school fees stay the same, and the mortgage is the same. So after a few years the person will have renegotiated the salary up, changed job, or moved country until the lifestyle is unchanged. Most likely, it will be renegotiated even higher to compensate for any losses in the years in between. That's the difference for people at the top of the salaries – they can negotiate their own pay when people at the bottom of salaries cannot do that.

In effect raising tax triggers a need for more profits and indirectly more exploitation of resources. The problem is the determination of pay itself. Are we paid because we are somehow connected with a lot of money that we can claim we have contributed to generating, or according to how much we need for a meaningful living? The high pays, whether they are for bankers, sports personalities, media personalities, and so on, are because somehow these people are involved in things which have a lot of money. We accept this even as we complain of the consequences.

There is a lot of good reasons for taxation, and I am inclined to Ken Livingstone's comment I once heard – the optimal tax rate is the one where people will still stay. If you push it further, you

generally do not get the result you want unless what you want is to make an ideological point. Scandinavia had very high taxes through the 1970s and 1980s and were forced to cut them in response to capital flight.

What I believe we should advocate for more equal wages by reducing the top pay. It is entirely reasonable for us to say we will not pay more than the top 0.1%-tile or whatever the threshold we want to choose for any top executive of our companies. This will slow this push to keep justifying pay as necessary for top talent. Plenty of very talented people work within reasonable scales of pay.

From the taxation perspective, a simple tax that treat all types of gains or income the same would make it fairer.

In the end, it is our resource which are constraining us. The inequality is a reflect of the lack of resources. Taxation does not increase the amounts of resources, and in stressed conditions, it may not produce the equalising effects at all.

*Q. One third of people preferred life in lockdown to prepandemic existence. A bounded existence is acceptable by many and many spent less. Does happiness increase beyond say £12000 a year ?*

The key concept is probably not happiness, but contentment. Happiness is an emotional state which we can induce chemically. Contentment has a little more to do with the sense of having a purpose over a longer time. Maybe we can also induce that with chemicals, but we can be content when things are going badly.

The question is about the level of income we need. This is certainly lower than what we think we need. However, when we have a particular level of income it is very hard for us to consider living on a lower one. It is simply part of our social psychology that we get used the comparison against each other at each level.

What we need are more positive stories of how people adjust to lower levels of income. This is the basis of our ideas of needing social connections. The media can help, and we can help ourselves too by being more open and vocal about it.

The converse is also true – the sense of gain of having more income is rapidly dissipated. Everything quickly costs more and the sense of financial pressure does not go away.

*Q. Where would you start raising more awareness right at this minute as the covid crisis and its economic challenges offer a unique opportunity to rethink our thinking and choices?*

We need to identify for ourselves something which is meaningful, and which we can therefore put our weight behind. For me, we have two cars, and selling either simply means someone else is going to be driving it. Swapping either or both for an electric car simply create even more immediate greenhouse gas emission. The best thing to do is to use them less, be more aware of when they are used, and whether they are used in a way that increases my social connections. I walk to Sainsbury's which is not far away but something I have not done since university. It has changed how I shop and how much food I get because I cannot carry that much. This has changed how I cook, and my interaction with my wife and my daughter. The fridge now is emptier. I am probably a little hungrier.

This works for me, and I can experiment to build on it in my social interactions. Most of all, it addresses the element I think is most important for our climate. This is to reduce our emissions immediately.

*Q. Why do you think that sustainable investments provide inferior returns. In fact for 2020 World Socially Responsible equity funds provided a 20% return with a sharp ratio of 0.7 this was above that for MSCI World. The more investors require SRI exposure and hence ownership the greater the performance of these Co's and returns of these co's*

When we first started looking at sustainable investments, we considered the following portfolio construction question. If a portfolio purely focused on sustainable investments can only invest in a subset of opportunities, and a portfolio not purely focused on sustainable investments can invest in all opportunities including the sustainable investments, then if all the best opportunities are in the sustainable subset, the broader portfolio can also purely invest in them and not lose out. However, if some of the best opportunities are not in the sustainable subset, then the sustainable portfolio would lose out.

This means that the sustainable portfolio can only perform as well as or worse than the broader portfolio.

The issue you are indicating is a sign that the sustainable opportunities have a greater demand and is driving the prices higher.

For discretionary managers, it does not make sense to allocate to overvalued assets. Therefore, as firms like Tesla become overvalued, it actually makes more sense to allocate less to it. This becomes reflected a lower performance. For a passive manager who follows a fixed index, the allocations to the ESG opportunities is generally less concentrated than in an ESG fund itself, and so it results in a poorer performance.

When both the active manager and the passive manager under-perform the ESG fund, the outperformance is suggestive of overvaluation than greater opportunities.

*Q. Global resources become even more stressed and environmental sustainability suffers as global population increases. Do we need to get policy makers to address global population growth given the global resources pie is limited/finite?*

China has just announced it is loosening its population policy to allow for up to three children, so it runs directly in contradiction to the questioner's suggestion. However, it is doing so because it has a view that our sustainable future depends on a better balance between the old and the younger generate more than on the actual number of people.

The problem we see at the moment is really our retirement. This puts huge demands on our resources as we are not contributing. It is less absolute population numbers as the way we live. We therefore need to address our lifestyle. Without a younger generation, this will be very difficult to deal with as Japan is experiencing.

When we do address the lifestyle, the world having finite resources mean we cannot have the lifestyle we may feel we have been promised. If we want to retire to travel round the world, maybe we can only travel to one continent. If we thought of having a luxurious living, we may have to make do with a reasonable living. For policy makers, we need them to be honest about this. We hear promises of how retirement pensions will be preserved when in fact they are not. We can prepare when we know we need to, but not when we are constantly told we do not need to.

Honesty means taking a chance on re-election. For our part, we need to decide if we would prefer to vote for the honest politician or not. This is our power to influence.

*Q. Any comments about so called ethical investment funds?*

Ethical investments funds are basically about marketing.

They are about making profits from opportunities that have been categorised or labelled as *ethical* by some criteria. This is not the same as investing to build an ethical or sustainable world. Getting good returns from ethical investments does not mean the world is becoming more ethical or sustainable. It only means that we have made money from those opportunities.

Many of the things we need to invest in for our world to be sustainable do not produce financial returns. What we need is to invest so we have meaningful lives. Pensions should really be spending their money to ensure we can have meaningful living as we get older. Ethical investment funds are not about this.

However, ethical investment fund managers generally do believe that what they do is on balance beneficial. We do need investments, and although we cannot predict the outcomes, they are not bad per se.

The problem is we cannot know which opportunity will or will not make the world more sustainable. To make large profits, we have to live in very similar ways. That is why high streets, education curriculum, work methods, and entertainment all end up with a samey feel. If a lot of money goes into ethical investing, then it will need to make a lot of profits, and the same problem arises. We are actually already seeing that. Ethical funds outperforming is a sign that there is too much money going into the area.

Japan government pitched for an ESG index that has to include every company. Its pension portfolio is the largest in the world and has been managing with only 1% to 2% return a year for many years. In its pitch, it recognised that every company contributes to build a sustainable world, not just those someone has identified as ethical.

*Q. Thank you for the very interesting and thought-provoking talk. Not all savings are hoarded to accumulate wealth to finance a more luxurious life style which we could choose to do without, with an rapidly aging population some of these savings will be needed to provide care for the elderly (not something you could choose to do without) how would you address this problem in a sustainable economy?*

One of the biggest problems we are facing is our parents are ageing and our children are still growing up, and we are squeezed in the middle. This makes us need ways to fund both the older and the younger generation and can put considerable pressures on our lives.

The problem is how to avoid the elderly from becoming objects of needs. This is the aspect where we need to consider them as able to continue to contribute economically and socially and encourage it where possible.

Japan has probably the largest proportion of elderly in the population, and their examples are worth considering. I worked there in the early 1990s, and then visited many times for work since. One of my colleagues there more recently told me about her learning violin. It was considered that picking up new skills like that is helpful to maintain mental agility and learning the fingering and delicate movements is also beneficial to maintain the physical health. There is a much greater focus on ensuring good health overall even when the people get to be in their nineties. This is something that will make a great difference. It is also a population with one of the lowest obesity rates in the world.

The other aspect is that many elderly in Japan do live under the poverty line. Their pension investments have been providing about 1% to 2% return only for many years. However, they work even as they get old. A 2013 report by Japan's research institute of trade and economy shows a secondary peak in the number of 60 year olds starting a new business. The motivation is explained by the ability to set their own schedule and the desire to utilise their skills.

Innovations that can help to enable people dropping out of conventional work to continue in some form or other is important to enable a sustainable economy. This is reflected strongly on the need to change our investment model from one of obtaining profits to one of developing an environment we can all continue to work and contribute.

*Q. You make it sound like it is the individual's responsibility to create the new governance. There will be a lot of powerful people/companies fighting these ideas. Which way would be the most successful way to push this forward?*

The arguments against change are principally that there are too many small shareholders, management knows better how to run a company, and that the social benefit of a business is to provide profits. The last point is what Rio Tinto used in a tweet last year to emphasise their social contribution.

The Sisters of St Francis of Philadelphia is a community of nuns that have been investing since the 1970s. From the start, they have been vocal small investors pushing the issue of governance on to big corporations. Last year, they were very vocal at preventing a change in the securities laws which would have made it much more difficult for small shareholders to have a say.

The point is what we think matter and the best way to push this forward is to say it. We will have to be tolerant of the fact that it will take time. However, if we are to have a world where efficiencies do not take away all our jobs, and digital automation with machine intelligence does not out compete local, small and medium enterprises which employ most of us, then we do have to speak up.

The most important thing is that everyone can be aware of the situation and of the implications. By speaking up, we can make this happen. The press can help. What they are writing is very often wrong in that it is an us, ordinary people, versus them, the big businesses, when what they should be

emphasising is that we are the owners and it is our governance right to express our responsibilities. The business management teams need to appreciate we are knowledgeable too.

*Q. What about the role of not-for-profit organisations that tackle environmental and climate problems? they can resolve problems that have no market solutions - why not include those in your portfolio?*

This is an excellent idea.

The not-for-profit organisations, by definition, do not provide profit and therefore does not fit in the typical investment mandates. However, in terms of the more important aspect of investment which is to shape a world we can live meaningfully in, their work is very important. Pension funds should definitely consider having them as part of the investments.

This goes to the point of how we report investments. The standard formula for pensions is a number representing what the assets are worth now, another number representing what the expected number at the stated retirement age will be, and a final number corresponding to how much income this means. None of this is particularly helpful in expressing how you may be able to live, and what the pension investments are doing to help you with how you may be able to live.

We need better investment reports that are honest and truthful. Each year, some investments will prove to have harmed our planet, and some will prove to have been surprisingly beneficial. If we can start into reporting in this way, there will be room to inquire how much we may be interested in different not-for-profit activities, and in which areas. Funds should also begin to ask us what matters most to us if our financial investments are to fail and therefore reflect on how they can provide that for us.

Many of the things that help to rediscover and re-establish social and economic connections for us do not require huge amount of funding, and collective across the \$100 trillion of assets it may be the cheapest way to help transit away from our need for financial returns.

*Q. Thank you so much - so thought provoking and will be the subject of many of my discussions going forward...*

Thank you for your feedback and please do feel free to contact us, [info@rethinkingchoices.com](mailto:info@rethinkingchoices.com)

*Q. In terms of climate change we do not have the time to do these incremental changes. I wonder what you think about citizen assemblies? Quite often the people that suffer from the price of cheap resources do not have a say*

In a time of crisis the most important thing is a cool head. When our decisions are taken in the heat of the moment, there is much greater chance of mistakes. In the case of climate crisis, such mistakes will inevitably make our situations irreversibly worse.

Citizen assemblies are therefore very important because the responsibilities fall on us.

What is most important is that we can get rid of our prior prejudices.

There is a branch of social science research related to speaking with future generations. The idea is that if we can place ourselves far enough ahead into the future, sufficient to be away from the noise of the current discussions, we can have a clearer understanding of what is most important. The point of the exercises is not to predict the future, but to peel away the noise. Most of the time, we repeat what is most recently discussed and therefore what we think is more important is not truly what we might genuinely consider as most important.

In one such experiment carried out in a mountain village in Japan, the conversation drifted between what the participants wished for and what they should be doing now. Each time the officials running the exercise had to correct them until they thought in terms of actually being a group that has come back from the future. The conversations then started to shift to indicate the things which they felt as most important.

I tried the exercise out with a friend from Madrid and it did take a while to get through the ideas of it being about predicting the future. In the end, he expressed how the weather in Madrid made it possible for a more outdoor living which meant people could connect socially. There were as a result good social connections all the time. This revealed how the climate change should be a really important matter for Madrid. If it becomes too hot, it will not be possible to be out as much, and the connections will be lost.

The other aspect of people who suffer do not have a say is also important. In the exercise in Japan, the people were asked to imagine they were from different social groups to what they were at present. This is a technique called Veil of Ignorance that was proposed by an American political philosopher. The idea is that without knowing what social status we may be, we are less likely to carry the same social biases we currently have. It is an important element to consider in citizen assemblies also.

On the point that we do not have time for incremental change, the issue is how to make sure we have capacity for change. The atmosphere has only so much greenhouse gases it can take, and therefore the first thing that should be done is to stop emitting what we do not need now.

There are a number of ways to do this. Building electric cars is not one of them. Nor is building wind farms or solar farms. All those will upfront our carbon emission on the promise that they will lower it in the future. What will work is to use less energy. We can slow down our ships that transport our goods across the world. A 10% reduction in speed would mean it may take a few days longer for our goods to reach us from China, but it would equate to 20% to 30% of saving in fuel. We can drive slower also with the same effect. When the earthquake hit Japan in 2011, the country lost 25% of its electricity generation. This was resolved by measures like raising the air conditioning temperature from 19 degrees to 21 degrees, unplugging electrical devices which drains electricity by being on standby even when they are not used, and so on. Similar thinking can help with understanding what we can do now that reduces our missions.

We currently have a believe that net-zero means things will be okay. Unfortunately, net-zero means we emit now, and hope that we can have measures in place which will compensate in the future. Unfortunately, emitting now means the greenhouse gas capacity is used up now. The climate changes that will follow will not reverse if the greenhouse gases are removed from the atmosphere in the future. The ice shelves and glaziers which melt now will only reform if we enter a new ice age. Not really what we want to be targeting.

It is important that decisions for these kind of actions are taken by us and citizen assemblies can help. We do have to be careful that we are not driven by emotions when we do this. We need

evidence that what we attempt will work. Simple actions generally do, but complex projects typically have much greater risks.

*Q. Is serious conflict inevitable as the world copes with climate change and fights over limited resources before any consensus on change can be achieved.*

We already see tempers run high, and the rhetoric is not getting any more tolerant of each other. There is a tendency for the media to focus on the talk of crisis which only drives emotions higher.

If we have a financial collapse, then the chances of major conflicts between social groups is very high.

The issue is there are a lot of emotions which need to be expressed.

We all contribute to the situation at the moment, and we have all benefited by the economic developments of the past two or three centuries. This development from the end of the eighteenth century has led to our welfare and problems. It is not right to cast blame any group as we are all in it together.

Can we avoid serious conflict? Niebuhr Reinhold, Barack Obama's favourite philosopher, had a book called *Moral Man and Immoral Society*. The idea is simply that as groups we end up letting the group's self-interest to dominate and when this happens things inevitably go bad. Groups have to define itself by some identify, and so it has to reinforce this to maintain its own cohesion at the expense of more nuanced understanding. Individually, however, we have the ability to appreciate it is not black and white. Each of us has inclinations to both good and bad. Avoidance of serious conflict is possible if we can prevent groups from getting to that point of extremism.

In Greece in 2013 there was a referendum to accept or reject the EU's third bailout package. This was when Tsipras and Varoufakis came to power. Accepting meant the end of Greece to many and rejecting meant the end of the Greece also to many others. It was basically viewed as an existential vote. At the time before the referendum, there was a social science research exercise to use a technique called *Letter from the future* to try and help people in their decisions. The idea is to write a letter to yourself, imagining it is now a few years after vote, and give yourself the wisdom of your experience to help you with the choice. There were some very moving, emotional letters and maybe something like that may help us to recognise what we have at stake if we allow serious conflict to take over.

*Q. How do you think what you've been speaking about could influence the education of children and young adults? Would that be useful/effective?*

It is very important to address children in education about this in the context of what we can do and the social and economic connections we need. Most of all, it is the ethical choice that needs to be made clear.

I work with young people in my parish and we talk about the importance of making decisions that help them to recognise who they are. The choices are not about having the options to be whoever we may want to be but recognising the person that we are and how we can be that. When we can do that, our footprints are necessarily smaller. This comes because we can give up on trying to keep many options alive. This is the essence of St Augustine's idea of good versus our more conventional

idea of good. Our more conventional idea of good is to have many options so that we can choose. In a world with few resources, that means we are keeping them from others. It is more fitting to St Augustine's idea of evil.

If we can reinforce the ideas that we do not need to keep self-serving interest first, have practical examples that children can follow, and explain how other-serving interests can help us to be who we are and become our better selves, then we will help them to seek meaning in their lives which will bring in our social and environmental connections.

*Q. If the overall system shifts to one where the polluter pays, does that shift investment to only perform well if it is sustainable?*

Investment performance in the short term depends mostly on the flow of money. Most of our investments now have become disconnected with the underlying realities. This is the result of a decade of quantitative easing where interest rates kept at zero has made money far too easy to be obtained. As a result, valuation of many of our best performing assets have little to do with how much they will be able to generate. It resembles, as a question earlier suggested, a Ponzi scheme.

Unfortunately, as long as these ultra low rates policy remain and they are likely to remain for some time, the financial markets will not really pay much attention to what is happening in the real world. Whether the polluter pays or not will unlikely change what will or will not perform.

At the moment, ironically also, a polluter can raise substantial money by issuing ESG bonds to help it to correct its errors at very low interest rates. This means if a polluter is in need of money, it can do so by claiming it was wrong, but now will make an effort ahead to be right. This means being identified as a bad actor does not prevent it from benefiting from free money.

In a more reasonable world where it is not free to exploit the planet, polluters will find it more costly. This will reflect on a higher burden to the company and lower prospects. In this case, it is more likely that there will be a shift to better performance for less polluting assets. However, there is still a difference between something that is recognised now as less polluting and something that may turn out to be hugely polluting in the future.

As an example, Starlink is a company that is providing mobile internet connections by launching low orbit satellites. There are some 14,000 satellites planned to be launched. These are expected to stay in orbit for three to four years. As they are low orbit, they will rapidly fall back into the atmosphere, maybe burn up or become part of the problematically growing space junk. One wild extrapolation is we find ourselves in 50 years time suffering from heavy metal poisoning in the atmosphere. This is not currently a polluter and so we reward it, only to find later that we have created another nightmare for ourselves.

*Q. Pension provision requires savings and finding sustainable answers to global warming and environmental degradation requires huge investment (cost of sustainable energy and rare metal scarcity are two examples of mega constraints). Perhaps the two may in harmony after all?*

The conflict is not in the aims but in the timescales. Pension investments need to meet with retirees' requirements. This means steady performance every year. Answers to global warming and

environmental degradation require careful approaches and good science. Investments are needed but having more investments does not produce better science. It is the case where paying a mathematician twice as much does not mean you have twice the accuracy for a calculation.

Having more money can help by including more people to be involved. However, spending twice as much money generally makes investors more nervous about the returns and drive them to make it in less uncertain areas. In other words, if it costs more to invest, the investments will more likely be more profit focused. That means we do not get the exploration we want.

If we can create more capacity to wait we may have a better chance for science and investments to work with each other. That means we have to reduce the pace we are damaging the planet. It has to involve slowing down our activities now. As covid has shown, it will mean slowing down our economies and we will have to live with less.

I do think it would be the right thing to do and would give us a better chance for our investments and our science to work together.

*Q. The root cause of the planet's plight is clearly too many people wanting too much compounded by aging and health concerns. Big Business is just the (somewhat flawed) messenger or perhaps the whipping boy like the "Gnomes of Zurich" in the 60s?*

We are indeed the cause of our own problems. We however by and large do not recognise it as that. We are quite happy to blame the Big Businesses ignorant of the fact that we own them. We do in that sense treat them in the popular media as the whipping boys, much like Swiss banker or "Gnomes of Zurich".

We can live with less. Situations like this has an economic inevitability about it that says even if we do not want to live with less, it will be forced on us.

*Q. How might ethics and purpose be defined in a new workable economic model?*

An economic model for a world with insufficient resources cannot rely on the ideas of division of labour and the reduction of our actions into sequences of independent transactions. It matters how we live our whole lives. What we do maintain is that no central controller can resolve the problems either. The issue is not about the lack of organisation but about the impossibility to foresee unintended consequences.

The idea of the invisible hand is that a central controller cannot do it better. That is still true. We do not agree, for example, with the philosophy of EU's taxonomy approach. That is if we declare something as good then all its consequences will always be good. Similarly, if we declare something as bad then all its consequences will always be bad. We do not know. Something that is good now can turn out to be bad later, and something that is bad now can turn out to be good later.

So in such a model, individual actions matter, but the value cannot be determined in a single transaction. Instead, we turn to the original ideas of economic utility, which is utility over a whole life. Has my actions given my life a meaning worth living for?

Ethics in this context becomes about putting other-serving interests first. In a world where resources are limited, each person pursuing self-serving interests will deplete the whole system of resources.

When utility is defined over whether my life has a meaning worth living for, it connects us socially, and puts the benefits to others into the picture. This brings in other-serving interest. The point is ethics is an economics outcome.

What about purpose? The idea of meaning worth living for brings out our individuality. Two people do not see meaning in the same way. Purpose is therefore about being who we are, not who we can be. By being only who we are, in a way that a pear tree is a pear tree and cannot be an apple tree, we use resources which we can genuinely claim to need even in a world where resources are scarce. Our social and economic actions, however, can create resources that others can use. When this happens our lives enhances the stability for others. This becomes other-serving.

*Q. Civilisation depends on including provision for those incapable or past work, thus a choice between a sustainable future and a pensionable one cannot be an option if there is to be a future, unless you have in mind a combination of "1984" and "Animal Farm"?*

This is the very crux of the problem. We have in mind a world where people become incapable or become past work. The threshold for this is actually very low in western society. Japan is living with a high proportion of people in its elderly population and is finding the need to extend this threshold higher and higher.

I worked in Japan in a research lab and the head of the lab is now 90 years old. He is still an active professor at a university, carrying out research and writing papers.

In *Animal Farm* and *1984* the future is one where the life is regulated and there is a central controller in the one case and a group who dictates by being more equal in the other. They set the threshold at which we are no longer useful. The thinking here is simpler. If we cannot retire because we cannot afford to hoard the resources to do so, then we each will have to discover how we can continue to contribute as we age. This is a model where we decide ourselves. However, we can only do so when our social connections allow us to participate. We therefore have to be more tolerant of people who contribute but in limited ways. We cannot demand the sort of perfection or efficiency in how jobs are performed, for example. We also have to consider being more generous in how we judge others.