BB Healthcare Trust

Monthly News
April 2020

Marketing document

As at 04/30/2020	Value	1 Month (April)	YTD	Since Launch (ITD)
Share	144.00	17.1%	20.5%	44.0%
NAV	114.38	18.8%	28.0%	59.6%

Sources: Bloomberg & Bellevue Asset Management (UK) Ltd., 30.04.2020, NAV and share price returns are adjusted for dividends paid during the period (but not assuming re-investment). Full perfromance data is on page 8.

Note: Past performance is not a guide to future performance. The value of an investment and the income from it may fall as well as rise and is not guaranteed.

Welcome to our April update. All Fools' day seems a month-long affair: a virus is carving a path of economic destruction across the globe; the population is cowed and social norms are being re-written by the unparalleled governmental and societal response to the pandemic (not including the leader of the free world advocating Domestos slurpees). A return to our previous normality seems both far-fetched and far away and yet, the MSCI World Index climbed 9.2% in a month and has now recovered around half its losses from the peak. You couldn't make it up...

Summary

BB Healthcare Trust Ltd is a high conviction, unconstrained, long-only vehicle invested in global healthcare equities with a max of 35 stocks. The target annual dividend is 3.5% of NAV and the fund offers an annual redemption option. BB Healthcare is managed by the healthcare investment trust team at Bellevue Asset Management (UK) Ltd.

Toward the Elysian Fields

Once again, we are compelled to pen a dissertation on disease and a disquisition on markets and human behaviour. We too wish for something else to write about beyond SARS-CoV-2. Sadly, there isn't anything so material and there probably won't be for some time. So, before we talk about the Trust, we will update you on our thoughts regarding markets and Covid-19.

First, a quick recap. So moved were we by the disconnect in valuations evident in mid-March that we published an "Ad Hoc" investor update to highlight what we saw as a significant opportunity (and that we had personally bought more shares in the Trust). Since publication (20th March), the MSCI World Healthcare Index has climbed a vertiginous 16.3% and its parent, the MSCI World Index has climbed 14.9%.

Plainly then, there was an opportunity, but we never imagined it would be realised so quickly. Apparently, economic pain and human misery on an almost unprecedented scale is good for investors. Who knew?? The market now sits at valuation levels that were last seen in mid-Q4 2019. Let us not forget that the broader narrative then was "it's late cycle, markets are expensive, downside risks are increasing".

Historically low interest rates and huge government interventions (recall the 2009/10 debate around market fundamentals during a recession vs. the so-called "Fed Put" of quantitative easing) can perhaps explain some of the rapidity in recovery. Never has financial assistance been deployed on such a scale.

However, it is being deployed for a reason – the fear of a global depression reminiscent of the 1930s; mass unemployment, huge business failures and years of lost output resulting in poverty for millions. The spectre of these four horseman again stalking the planet was too much to contemplate. It wasn't because everyone wants the stock market to go up (Trump is seemingly the only person on earth who sees high market valuations as a worthy goal in and of itself). So how did we get here?

Simply put, the market narrative of "pandemic panic" has given way to one of "re-opening and recovery". As many a Cassandra CEO pulls their guidance for the coming year, so another lines up to predict a bumpy Q2 that swiftly gives way to sunny uplands and a "normal" Q4. The optimists are feted, the Eeyoreish ignored.

Whilst we noted in the aforementioned Ad Hoc missive "there is no easy way to accurately call the bottom", we also emphasised it made for an interesting long-term entry point, since the many inefficiencies of the current healthcare model had been laid bare. Even as we wrote again in early April for the March Factsheet (but two weeks later), we sounded a note of caution on the rapidity of recovery.

Between the Cyanean Rocks

We could not have imagined that the sector would continue to make such progress or that investors would so readily dismiss the medium-term risks. In summary then, we find ourselves between a rock and a hard place, both in terms of asset allocation and in terms of one's personal circumstances.

Paradoxically, lockdowns must end but they will only end if they can. Our own view is that we are far from conquering this pathogen. There will be many more deaths, more restrictions on activity (possibly a return to lockdown) and a very long a protracted recovery of the economy (more bathtub shaped than 'V' shaped). We will try to lay out our current thinking as to why we are so cautious on the outlook in this month's missive. This has resulted in a longer and more discursive piece than usual and we are hardly famed for brevity at the best of times!

These are strange times and we want to share as much as possible with our investors so that they can understand our perspective on events. Hopefully readers will find the background useful as they navigate the difficult months ahead. Beyond the usual commentary on markets and the Trust's investment performance (including a discussion of our investment in now-defunct NMC Health on page 6), the subject matter we have sought to cover is:

1. How one might think about the end of lockdown.
2. Managing the pandemic in the post lockdown phase, including testing.
3. The development of a vaccine, especially around a realistic timeline.
4. What the 'new normal' might resemble and the economic and healthcare utilisation consequences thereof.

Rumsfeldian ruminations

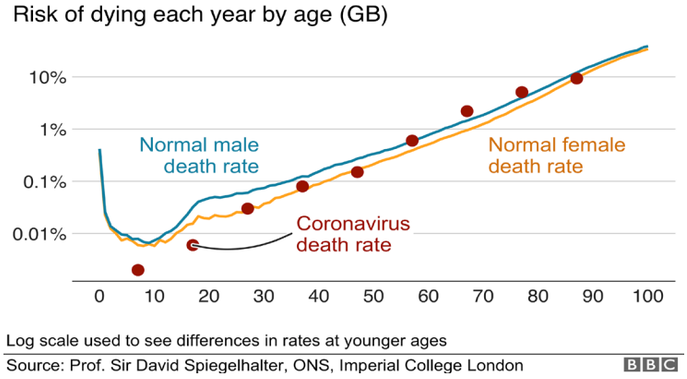
The devastating economic consequences of all of this are now well understood and the human tragedy that continues to unfold is clearly too much for many casual observers to bear. Again, we would not wish to trivialise anyone's personal suffering from families being rent asunder, but this whole situation must be considered from a macro perspective. Inevitably, the numbers become very large in any such consideration and the analysis must be objective and dispassionate.

As the Government considers how to move away from a lockdown, the factors that must be weighed are (in no particular order):

1) The maintenance of measures sufficient to keep the reproductive ratio (R0) of the virus below 1.0 (above 1.0 = exponential growth in cases, below 1.0 = decline in cases. The virus' natural R0 looks to be ~2.0 without any measures, but there is a range of views on this).

2) Alleviating the social, economic and psychological burden of lockdown and reduce the secondary deaths that occur from people failing to see physicians, poor mental health, unemployment etc. This is not a trivial consideration, even relative to the numbers being reported for direct SARS-CoV-2 deaths; we have seen >7,000 non-Covid excess deaths reported in the UK since early March to Mid-April (the last available ONS dataset).

3) Ensuring that the most vulnerable in society are protected, since their risk is many multiples higher than the very-low risk to the majority of the population (as the BBC graphic on below illustrates clearly).



Log scale used to see differences in rates at younger ages

Source: Prof. Sir David Spiegelhalter, ONS, Imperial College London BBC

The lockdown strategy of most countries seems to have been driven as much by the desire to stop the healthcare system collapsing under the strain as anything else. This is laudable, but needs to be put into a long-term perspective because we cannot remain locked down forever. We must learn to live with Covid-19 for some time to come. What might the new normal (or the first steps toward it) look like?

Serology data strongly suggest the virus has yet to infect 90-95% of the population here in the UK. Based on those same population studies, which amply demonstrate that the case numbers reported by governments are a huge under-count, SARS-CoV-2 has a ~0.1-0.2% case fatality ratio ("CFR"). This sounds so much nicer as a reciprocal: at least 99.8% of us will survive and around half of us will never even realise we have had it, but nonetheless it means somewhere north of 0.1% of the population will not survive exposure and the majority of those that perish will be elderly.

In our country of 66.7 million people, this makes for 66,000 to 132,000 deaths just in the UK if we were all infected (in reality, the pandemic will probably peter out at about 60% penetration due to the impact of herd immunity on the R0 discussed in last month's factsheet).

This is a key point: we may have gotten over the first wave of this infection, but the grim truth is that we must accustom ourselves to a non-zero and potentially material rate of death for some time to come. The end will only truly be with us when either there is a vaccine or herd immunity is attained (both of which are complex topics to which we will return).

If we remain locked down until there is a vaccine, then direct deaths attributable to SARS-CoV-2 will indeed plateau, but society as we remember it will never return because we will not have a functioning economy and the non-Covid deaths that could be prevented (and are thus "excess") will remain far higher than they should be. The public is rightly clamouring for more investment in the NHS to make it more resilient. Growing support for additional investment is commendable but must be paid for out of taxation and that requires GDP to expand, not shrink.

Economics is often referred to as the dismal science (a phrase seemingly coined in a discussion between Carlyle and Malthus; one can only wonder what the latter would have made of all this). We would argue the most dismal of sciences is actually epidemiological modelling. The problems come from the need to make very large and long-term extrapolations from small initial datasets that are inevitably wrong (doubly so if the sources have dubious reputations on data like China does).

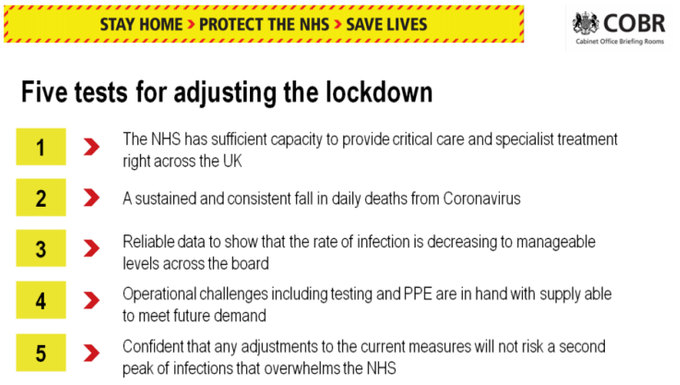
Most of the prediction from the Imperial team that seem to have the Government's ear have been wrong and there is no reason to think the accuracy will improve in the near-term. Sadly, it's all we have got. Without a clear epidemiological answer as to what to do, we must move slowly and iteratively forward.

The UK Government initially suggested that the lockdown is likely to continue as new case reports begin to plateau, which has now begun to happen. At the same time, the testing regime needs to be ramped up for surveillance reasons. We have discussed the "denominator problem" before. Simply put: the more you test, the more cases you will find (most of them being mild to asymptomatic). So, as we ramp up testing, the "falling new case reports" hurdle becomes harder to jump.

This is probably why the commentary evolved into the nebulous dictum of "we will follow the scientific advice". The fact this advice is concluded away from public scrutiny is another source of criticism from the media. As the great physicist Fenyman said: "scientific knowledge is a body of statements of varying degrees of certainty - some most unsure, some nearly sure, but none absolutely certain".

The public can probably handle this truth and we think politicians should be more honest about what they don't know, especially when dealing with something whose existence was unknown less than half a year ago and for which there is still a paucity of clear data on a number of key issues.

More recently, the Government has unveiled five key tests that must be met (shown below). Points 1-3 look to be broadly in hand and point 4 is a separate logistical issue on which we cannot opine, but again should be manageable. Point 5 can only hold if there is a sufficiently robust surveillance regimen in place to allow the Government to detect any potential second wave or rule it out entirely (which can only happen if we have a vaccine). We will focus our attention on this latter point.



Track and trace or hide and seek?

What do the scientists want post lockdown to manage this situation until mass vaccination is practicable? Ideally, they want a suite of tools to "track and trace" infections and serological tests that can establish exposure and determine immunity, allowing localised and rapid action to contain any secondary outbreaks if serology testing suggests enhanced containment is warranted. Many hope that technology can do the heavy lifting for us: 30 countries now have government-sanctioned 'track and trace' apps.

These vary in design but broadly speaking tell you (using a Bluetooth signal) if you have been near anyone who has latterly reported symptoms, with the idea that you will self-isolate or get tested. Of course, they will only 'ping' the phones around you periodically and not all of them record proximity or contact duration.

To reduce false contacts, Australia's app only picks up contacts within a 1.5m (<5 ft) radius, which by definition is a breach of their social distancing guidelines. But some sort of range and duration information is surely essential - from an infection risk perspective, there is a big difference between being in a room with someone for an hour to passing a stranger on the street (not that the general public seem to appreciate that, having been scared half to death by the media. This is immediately obvious from taking one's permitted daily exercise or listening to LBC).

Like vaccination, these apps also require a high proportion of the population to use them in order to be effective (different governments have quoted figures ranging from 40-60%). In countries that have made apps available but not compulsory (Singapore or Australia, for example), uptake rates have been well below these levels. In addition, if the data is anonymised, it relies on people to report symptoms or reveal they have tested positive promptly, so the relevant contacts can be alerted.

Even before one considers the human behaviour aspects of this approach, it also depends on the ability to get prompt results and that any tests are accurate. As with most things Covid-related, this topic is not as simple as it seems.

Testing – trenchant tool or tremulous prop?

For the UK in particular, there has been a tremendous media focus on testing and we have struggled to understand why the Government has not been more forthright in defending its position, which we believe is defensible, as we will try to explain below. A common media retort is that "country x has more testing and its death rate is lower".

The validity of this comment depends on the definition of "rate" due to the denominator problem. If you look at deaths per confirmed cases then of course more testing makes things look better (there is a difference between a fraction and a number; more tests does not necessarily mean lower total deaths). The only valid way to begin to make a comparison is to look at deaths per capita and this data can be easily found on the web. Even then, one must be careful – poor little Belgium (which appears by far the worst on such a metric) is the only one regularly updating deaths on a community-wide basis, whereas our headline rate was hospital-only until a few days ago.

We would again highlight the issue of 'dying with' rather than 'dying of'. For instance, if you go into intensive care for a different reason, then pick up coronavirus and die anyway, what should go on your death certificate? There is no universal approach here and it will be years before all of this is unpicked and we decide who got it right (or least wrong), especially as this is only the first skirmish of a protracted battle in an asymmetric conflict.

In our view, the best way to measure the impact is the totality of excess deaths seen over the period this virus circulates without a vaccination option – why is the person who was denied timely cancer treatment's life any less important in measuring the toll than someone who died directly of the viral infection itself? This is where Sweden may end up making the rest of Europe pause for thought, but that is a discussion for another time.

Let us leave all that aside and assume for a moment that we had widespread and accurate testing on day one of this outbreak here in the UK. What would it have changed? The advice has been to self-isolate if you have symptoms and to call the emergency services if your condition worsens. Many who self-isolated in the early phase may not have had SARS-CoV-2 (recall the seasonal flu was still in its tail end at that point) and that may have contributed to some public services struggling due to lack of staff.

However, we would never have been in a position to test everyone and identify asymptomatic cases (barely any countries managed to sustain mass testing for any period of time), and that is before we even consider how accurate or reliable the early versions of these tests were (answer – nowhere good enough) so the lockdown would still have been the prudent response.

Now let us look at the reality of testing. There are essentially four types of test:

- Central lab-based infection tests using rapid gene amplification (real-time PCR) to quickly confirm the presence of viral RNA. These are easily incorporated into path lab workflows and thus easily scaled up. At scale, such tests should cost <$10 to run per patient. These tests are the workhorse of infection tracking and it is this capability that the UK Government has been looking to scale-up to 100,000 tests per day.

- Point of care ("PoC") testing for respiratory infections. There are many companies that supply machines that sit in the A&E or Acute Care ward and are utilised to rapidly identify the cause of respiratory infection within minutes to hours (depending on the machine), the idea being that appropriate intervention can begin at the earliest possible opportunity. Many of these panels already covered the related SARS and MERS pathogens and have recently been approved for testing for SARS-CoV-2. However, they are much more expensive to run (upwards of $50 per case, depending on what tests are run). The availability of these tests will be useful in identifying outbreak 'hotspots' moving forward and they are likely to become a more common feature of the A&E triage process for anyone arriving at hospital with respiratory symptoms. PoC testing has long been a focus for the Trust.

- Serological tests – these will tell you if you have had the disease and now have an immune response against it, although as we will explain below, not all immune responses are the same. An appropriate suite of serology tests (more on this later), when available, will be important in assessing when herd immunity has been reached and also in clarifying the definitive CFR.

- Ideally, the science will progress over time to allow sufficiently accurate and sensitive disposable lateral-flow tests for use at home (think of a pregnancy test with its multiple stripes – one to confirm a viable sample and others to determine the result). The first models have been developed for antibody testing to confirm the presence of anti-SARS-CoV-2 IgM and IgG, but they are designated for research use only at the moment. Infection (antigen) testing may also be possible with lateral flow technology, but the challenge is sample volume.

When considering the deployment of any mass testing programme, there are three key considerations: 1) accuracy/reliability – how confident can you be that the answer is correct? 2) Scalability – can you offer this testing approach at sufficient volumes for the information to be useful and 3) Cost. As far as we are concerned, points one and two were only reached in mid-April, but even then there are problems.

Let us consider accuracy. False positives and false negatives are inevitable; there is no test that will pick up every case and also be accurate. The ability to detect a true positive result is referred to as sensitivity and the ability to exclude a false negative result is referred to as specificity. In the case of containing an infectious pathogen during exit from a lockdown, weakness in either facet is undesirable. False positives will leave healthy people stuck at home and false negatives will allow the virus to spread again as the outwardly healthy unwittingly go about their business.

These two parameters combine into metrics know as positive and negative predictive values (PPV & NPV). Here again, the law of big numbers comes into effect. Let us suppose we had tests that were 98% accurate with respect to sensitivity and specificity (as noted above such tests with the relevant regulatory approvals were only available on a mass produced basis a few weeks ago).

This may seem counter-intuitive initially, but the lower the prevalence of a disease in the population, the greater the impact of the false positives and negatives will be. For instance, if we assume 10% of the population is infected, then a 98% accurate test will still lead to an outcome where 16% of the positive results are false positive and 0.7% of the negative results false negative.

That is the better way around of course but this illustrates the point – an unreliable test is of limited use. As it is, the scaling up of testing capacity around the world will continue for months as the companies concerned ramp up production. We think the UK Government should have been more candid about all of this. As a bit player in the global diagnostics industry, the UK is more reliant on third parties to deliver this capability, but we are getting there.

The media seeks to conflate low testing with more fatalities, but we would counter this is not necessarily the case. The timing of the lockdown and the overall level of adherence to social distancing are probably far greater factors.

Some animals are more equal than others

Now let us consider serology testing. The premise is simple – you have an infection, you fight it off and then you are immune. This facet of "immunological memory" is what we exploit for vaccinations. Like the Armed Forces, the immune system has different types of troops and equipment to call upon. The reality is that not everything generates a persistent immunological memory that can prevent re-infection. Let us briefly cover how the immune system works in very simple terms, before we explore this further:

The body's response to a viral infection has a number of stages. The 'innate' immune response (that which you are born with) has a group of cells called macrophages that act as sentinels. They patrol the body (you will find them in all tissues) and recognise unfamiliar proteins as foreign, based on their shape. These proteins (and whatever they are part of) are absorbed, broken down and the protein fragments are 'presented' on receptors called MHC (think of the slain heads outside the Tower of London in times of yore).

Specialist populations of immune cells (known as 'T cells' and 'B cells') are primed to recognise specific shapes of foreign proteins ('epitopes') clamped to these MHC receptors. When these cells come across such a receptor, the B and T cells begin to multiply. The B cells either become "effector cells" and begin to produce antibodies that can also bind to these same epitopes (think of an antibody as a tag, marking the virus for destruction), or become memory cells.

This process of B and T cell maturation occurs in the spleen and the lymph nodes (hence the swollen glands in your neck when you have an infection). During this phase (which takes a day or two to kick in and can go on for a week or so), the activated cells rapidly mutate their antibody-generating DNA in a random process that creates antibodies that are better or worse at binding the epitope. Those that are most successful at binding to the epitope will proliferate fastest in the body, so this is a rapid process of natural selection that optimises the immune response to the invading pathogen.

Memory cells linger in the body and can rapidly re-initiate the same responses if the epitope is ever discovered again. This is the basis of immunological memory and why, often times, you cannot get the same infection twice. The T cells can become "killer" T cells and they will then kill any cell that is infected with the virus (as such a cell will also present that epitope on its surface). T cells can also become memory cells, allowing both branches of the attacking force (T cells and antibodies) to remember the invader.

This process of determining which cells do what and become what is regulated by a family of proteins called cytokines. Part of the reason that older people are more susceptible to infections is because the ability to rapidly produce T and B cells declines with age, most likely due to altered cytokine production.

Hopefully the simplistic summary above already begins to explain how some people manage to fight off an infection better than others: your innate immune response is unique to you, there is an element of luck in the antibody optimisation process. Some antibodies will bind to the virus in a way that neutralises it (i.e. stop it entering another cell) and others will not. T cells are equally important and so any variation in the relative level of T or B cell response can also be a key factor.

Finally, these B-cell antibody responses come in different types. The initial response is via something called an IgM antibody (think infantry) but it is the longer-lived IgG ('special forces') that is the one most effective at combating viral infections (and even then there are sub-types, but let's keep it simple). IgG is a secondary response. If this does not kick in, then you will not have as good a response to the infection. T cells originate in the thymus and this organ shrivels away throughout adult life, so the intensity of the T cell response also declines with age.

Rumsfeld II – the known unknowns

Let us now come back to serological testing: knowing that someone has antibodies to a virus using an ELISA assay is essentially half the story. What type of antibodies do they have? Is the T cell response also there? What about the memory T and B cells? How long will they persist for? Do the asymptomatic patients respond vigorously?

These questions become especially acute for the vulnerable, who tend to be old or immune-compromised by definition. A test that tells you merely that you have experienced an infection is pretty useless, especially if you were symptomatic or we already know you have had it. The key question is whether you are at low risk from secondary exposure. Any ELISA test thus needs to focus on IgG responses only, rather than IgM and for antibodies that are neutralising via binding to the virus' protein spike that allows it to infect cells.

This is not per se a difficult test to develop. It is also not so difficult to develop similar B cell and T cell assays to determine the presence of SARS-CoV-2 specific T cells and memory B cells (these are known as ELISPOT assays), but we are now talking about three tests that need to be run rather than one and they are not things that can be done in minutes to hours. Even when we have these tools to hand, we still need to run a long-term follow-up programme to know how long post infection these cells continue to circulate.

All of the above is a very long-winded explanation of a simple reality – we will not know any time soon whether previous exposure to this virus conveys meaningful long-term protection. We must thus 'embrace uncertainty' and make some assumptions.

Zoonotic coronaviruses are not new. We have had outbreaks of SARS and MERS and there are four types of coronaviruses in the family of seasonal infections that we refer to as the common cold. Immunological memory can be assessed through an antigen challenge – does the body respond to re-exposure to the pathogen (the experiments are done with animals or on blood samples in a lab environment – no-one is intentionally re-infecting recovered patients with a harmful pathogen).

What we know from these different examples paints a mixed picture around immunological memory. The reason the cold is "common" is that the immunological memory to those coronaviruses only persists for a few years (these viruses have been studied since the 1960s). That said, if we can deliver a vaccine on that timeframe then all well and good.

For SARS and MERS, where the human outbreaks were in 2004/5 and 2012 respectively, a spectrum of immunity has been seen lasting weeks in some and many years in others. SARS seems to generate more persistent immunity than MERS (which is good, because it is more closely related to the virus that causes Covid-19 than MERS is).

We do not know how long immunological memory to SARS-CoV-2 will typically last. At best, the longest-serving patients to test can only have recovered a few months ago. Moreover, early studies suggest some people who have recovered from Covid-19 have very low antibody levels and further work will be needed to determine if they are now immune. There have been persistent reports of recurrent episodes, which could suggest that having Covid-19 once does not preclude having it again. If this is true, there are three possible reasons for it:

1) It is a virus that mutates quickly (like Influenza) so you only have partial immune protection. Covid-19 is mutating into hundreds of very slightly different sub-strains as you would expect, but it has not yet been around long enough for that to be a material issue in our view, especially as the 'spike' protein is highly conserved.

2) There are infections that can recur. Varicella Zoster is an example of such a virus – it causes chicken pox in children and can hide in the nervous system to recur as shingles later in life. It is possible that SARS-CoV-2 is such a virus, but this seems unlikely based on the history of the closely related SARS pathogen.

3) There are diseases that you can catch more than once (e.g. Dengue Fever). This third option is again intuitively unlikely based on our experience with SARS and MERS and primate studies could not replicate a reinfection scenario with a re-challenge using the SARS-CoV-2 virus.

Where might these cases come from? Firstly, we don't know enough about the individuals concerned yet to rule out them having an immune deficiency. Secondly, it may be that many people who have been tested and found to have recovered actually had not cleared the virus from their body. A number of the early tests that were used were not all that reliable (i.e. these were false negative outcomes). As such, they would not actually have been re-infected. These questions will probably remain unanswered for some time, although a recent paper from Korea did suggest that a number of re-infection cases reported there were due to inaccurate tests, based on re-testing the samples with the more reliable tests that are now available.

Sacred Cow

All of the above brings us neatly to the topic of a vaccine. We struggle to keep count of all the vaccine development programmes (70+ at our last count) and the laudable efforts of arch rivals in this field like Sanofi and GlaxoSmithKline to co-operate in order to expedite the development of a viable vaccine is also good to see. Sadly though, we must again temper what we perceive as growing excitement around this topic.

We have no doubts that more than one of these approaches will form the basis of a viable vaccine, but this is only half the battle. The amount of antigen ("fake epitope") that we must deliver to a patient in order to illicit a strong immune response can only be determined by trials. Some vaccines require more than one dose to illicit an effect and, in general, vaccines work less well in the elderly for all of the reasons explained previously and they are our key target group for this vaccine. Trials take time.

We must be careful around safety. Some vaccines can actually worsen subsequent infections through a phenomenon called antibody-dependent enhancement (ADE). This is a complex topic but essentially the vaccine prompts the creation of the wrong sort of antibodies and instead of neutralising the virus, they tag it that allows it to still enter cells and replicate. It then multiplies inside the macrophage ("sentinel") cells described earlier, resulting in an accelerated escalation of the infection's severity. Although scientists are aware of these risks and seek to reduce them during early development, it is still a complex phenomenon and only sufficient testing can rule out this risk.

Even when we have overcome safety concerns and have established the correct titration schedule to illicit the desired immune response, the vaccine must be mass produced and, in the case of SARS-CoV-2, demand for this virus will be on an unprecedented scale. There are >700 million people over 65 in the world and nearly 8 billion of us in total.

If the herd immunity threshold for this virus is around 60%, then we need to ultimately immunise some 5 billion to bring the R0 to zero, otherwise Covid-19 will keep popping up from time to time and we really need rid of this thing if we are to get society back to normal, such is its fear-inducing reputation. People think its Keyser Soze, when it is more like Verbal (wasn't that a great film?).

One should not trivialise such a logistical challenge. Most of the global vaccine capacity is devoted to influenza vaccine production and we may not be in a position to deliver more than a billion doses of a novel vaccine in a given year with current production capacity (and that is assuming a spirit of global co-operation continues). Global and national-level procurement programmes have driven vaccine prices down. This has been great for access but has made the vaccine industry less attractive as an investment and we are left with a global oligopoly of a few major suppliers.

If you need several doses of the SARS-CoV-2 vaccine to get an effect, it will take years to protect everyone. There are clamours to rapidly build new production vaccine candidates on a mass scale in parallel to their trials, knowing some of them will never be used. The US Government's proposal to do this is wittily titled "operation warp speed" – Agent Orange may be incompetent, but he is a seam of comedy gold.

In summary, the issue here is thus not human ingenuity but the logistics of conducting the trials and then making and distributing the vaccine. We believe viable candidates will emerge in 2021, but would not want to speculate on when mass vaccination is viable, probably 2022 or beyond. This is a critical issue with respect to assessing the normalisation of the economy and it is reassuring that the problem is being recognised and those with substantial resources (the US Government, the Gates Foundation) are ready to throw billions at overcoming it.

The new normal?

At this moment, it is probably very difficult for us all to imagine what life will be like when this has all been consigned to history, but that is the essence of the portfolio manager's role – identifying future risks and opportunities based upon the available evidence. How do we go about rationalising this? Times past offer three certainties:

1) This will come to some sort of an end.

2) There will be a new normal arising from that; not quite the same as before but life always finds a way. Generally-speaking, traumatic events accelerate the rate at which already-existing changes spread through society (e.g. online retailing and the death of the High Street).

3) We can be assured that the crucible of conflict spurs new ingenuities. Many of our most profound societal and technological changes arise as a consequence of conflict or the threat thereof (e.g. the Cold War and the space race) and it is already apparent that our elected leaders are willing to experiment with all sorts of novel governance and regulatory approaches, some of which will stick.

Readers do not need us to tell them how febrile the public mood is. As if all the human and economic suffering were not enough, the palpable fear one sees when going to the shops or out on daily exercise is worrying and, in our opinion, out of all proportion to the real-world risk the majority of these fearful people face. It is particularly upsetting to see children so worried.

Whatever does emerge will probably do so very slowly. In the meantime, there are many, many consumer surveys out there that will talk to consumer reluctance to attend mass gatherings like sports events even if they were allowed, or to fly on a plane or visit the dentist.

We spoke this week with a member of staff from a large London school with hundreds of pupils deemed vulnerable or the children of key workers. Staff provision and relevant distancing measures are in place to allow these children to go to school. Many did in the first days of lockdown but few are now turning up. Parents are worried for their children's safety and won't let them go in.

This one example is very telling in our view and it illustrates the challenges of convincing people to return. Who can face the Tube in London if is forced to operate at 7% capacity with customers loaded on and off at each station by staff, or go to skyscraper (like our office) when lifts may only be allowed to carry two or three people at a time. Our cramped commuting and working conditions are simply not designed for this sort of situation.

In spite of what we see as compelling evidence to the contrary, the collective wisdom of the equity markets point to rapid recovery and normalisation (although sentiment is again wobbling as we go to press). This disconnect between these two perspectives has become the overriding consideration in our capital allocation decisions, bringing us onto the Trust.

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Performance discussion

As noted previously, April was a stellar month for markets in general and Healthcare in particular, with the MSCI World Healthcare Index rising 9.5% in sterling terms, outperforming the wider MSCI World Index, which rose 9.2% over the same period.

The similar performance of healthcare and the wider market belies a very different trend over most of April. Until a few days ago, healthcare had strongly outperformed the wider market over the second half of the month, but this was all given up in the last few days as investors doubled down on the recovery theme and traded out of the relative safety of healthcare, rotating into early cyclicals.

The driver of this seemed to be the rather lacklustre data for Gilead's remdesivir in its first controlled trial in Covid-19 patients, the narrative being "we are close to a cure, so the economy can get back to normal". Again, we would characterise this as hope rather than objective data analysis and the divergence in opinion on the data quality between generalists and healthcare specialist was notable.

The sub-sector performance is highlighted in the table below. Given the macro backdrop of the pandemic narrative, it is no surprise that diagnostics were one of the best performing sectors. Animal health and the super-defensive distributor companies (more geared to volumes than value) were amongst the laggards. Pharma held up well for much of the month but was the main casualty of the rotation trade out of healthcare in the closing days of the month. Hospitals (Facilities) bounced back strongly on the presumption of a rapid return to normal. All in all, it felt very top-down rather than rational and stock-specific factor led.

BENCHMARK SUB-SECTOR PERFORMANCE AND WEIGHTINGS

Sub-Sector	Weighting	Perf. (USD)	Perf. (GBP)
Healthcare Tech.	0.7%	23.3%	21.5%
Diagnostics	1.9%	18.2%	16.5%
Facilities	0.8%	17.8%	16.1%
Healthcare IT	1.0%	17.8%	16.1%
Managed Care	8.6%	17.1%	15.4%
Generics	0.3%	16.5%	14.8%
Services	1.8%	15.8%	14.1%
Tools	5.9%	15.8%	14.1%
Dental	0.4%	15.3%	13.6%
Conglomerate	11.2%	14.9%	13.2%
Biotech	9.6%	11.9%	10.3%
Med-Tech	14.5%	10.2%	8.4%
Animal Health	1.3%	9.9%	8.3%
Specialty Pharma	3.6%	8.9%	7.4%
Pharma	35.4%	8.7%	7.1%
Distributors	2.8%	4.0%	2.4%
Index perf.		**11.5%**	**9.9%**

Source: Bloomberg/MSCI and Bellevue Asset Management (UK) Ltd. Weightings as of 31-03-20. Performance to 30-04-20.

If we look at the performance of the US S&P500 Healthcare index and compare it to the European Stoxx 600 Healthcare index, the year-to-date total return is lower in GBP for both, highlighting the strength of the Asia-Pacific region (which is only around 10% of the Index weighting).

As noted previously, we have been rather alarmed by the rapidity of the recovery and the somewhat laissez-faire attitude to downside risk that prevailed during the month and it will probably come as no surprise that we have again tried to re-position the portfolio during this run up. Taking aggressive action early in April has paid off in terms of our overall performance and hopefully leaves us better positioned for what we expect to be a more challenging period of relative and absolute performance for healthcare. We have summarised the changes in the table opposite:

	Apr 20	Mar 20	Change
Biotech	14.9%	13.8%	1.1%
Diagnostics	13.9%	15.9%	-2.0%
Facilities	0.0%	0.7%	-0.7%
Managed Care	15.7%	14.7%	0.9%
Med-Tech	9.6%	11.0%	-1.5%
Pharma	7.2%	6.5%	0.7%
Specialty Pharma	24.8%	20.5%	4.3%
Dental	1.0%	4.5%	-3.5%
Healthcare IT	5.1%	5.5%	-0.4%
Services	4.2%	3.7%	0.5%
Tools	3.7%	3.2%	0.5%
	100.0%	**100.0%**	

Source: Bloomberg/MSCI and Bellevue Asset Management (UK) Ltd. Data as of 30-04-20.

Little if anything has changed in terms of our five year outlook for the companies we like. If anything, our expectations for the pace of change in healthcare have accelerated as the system's shortcomings have been laid bare by this crisis. Nonetheless, the market is not rational or fair in the short-term and it would be foolish to ignore the current environment.

With that in mind, we are very focused on the pace of recovery currently implied by consensus forecasts versus our base case. We are also very cognisant of relative valuation to that base case. There are no sacred cows for us and we are happy to reduce exposure to anything that looks egregiously over-valued or where earnings forecasts are uncomfortably high in our view.

Broadly speaking, we have reduced exposure to non-essential (i.e. elective) medical procedures, especially dentistry, where our exposure was on the ortho/cosmetic side. This has been offset with increased exposure to defensive contract driven revenues in Services and Tools and essential medicines through the Biotechnology and Specialty Pharma categories. We have taken profits in diagnostics and healthcare IT and are again running a net-cash position versus being levered at the end of March.

The Trust's Net Asset Value rose 18.9% during the month to 144.38p, outperforming the Index by 9.0%. This is our strongest monthly outperformance since inception and came despite the aforementioned shift in the month to more defensive positioning and a return to a net cash situation, and with us carrying an impairment charge on our holding in NMC Health Plc ("NMC") that reduced our return by ~0.7% during the month.

The central tenet of any due diligence process begins with a company's audited regulatory filings, which contain a statement from the auditor attesting that they reflect a "true and fair view" of the entity. Unfortunately, this turned out not to be the case for one of our investments.

In the case of NMC, the group's indebtedness was grossly understated to the tune of $4.5bn (actual debt of $6.6bn vs. last reported of $2.1bn as at 30 June, 2019) with such deception remaining undetected and going back to at least early 2018. In the UK, the FCA has launched a formal investigation and criminal proceedings have been launched both in the UAE and in the UK. Clearly NMC's directors, management and auditors (E&Y) will have questions to answer. Along with numerous others, BBH is unfortunately also a victim of this crime.

The Trust has held a position in NMC since May 2019 and. We were aware of questions about governance and accounting then, and subsequently, but we felt these concerns were reflected in NMC's share price, making it a well-positioned play on expansion of developing market healthcare provision. Indeed, this holding generated a positive return for investors during FY2019.

However, on 26th February NMC announced the uncovering of significant accounting discrepancies and that the CEO had been dismissed. The shares were subsequently suspended the following morning, before the market open.

During March, as the full extent of the fraud became clear, the valuation of the Trust's holding in NMC was progressively impaired by BBH's board, such that it represented 0.7% of the Trust's gross investments at the end of March (having peaked at 3.0% of gross assets in September 2019). At that time, discussions were continuing around a debt re-negotiation and recapitalisation. However, on 9th April, NMC was placed into administration and the stake's value has now been written down to zero.

This is a very disappointing outcome and is a reminder of the limitations of due diligence and audited accounts in the face of criminality. We will not report NMC as an active position moving forward, but will continually evaluate potential value recovery strategies for the Trust as the legal picture becomes clearer.

Developments within the Trust

As noted above, we have moved from a gearing ratio of 3.7% (i.e. we were invested to 103.7% of NAV) to a cash positon of 4.5% (so 95.5% invested), reflecting our growing perception of market valuation and sentiment diverging from economic reality. This is about as far as we feel that we can push things given our commitment to remain fully invested.

Although we have re-balanced the portfolio, it has not changed in terms of its constituents. With the exclusion of NMC from the list of investments, we now have 30 equity positions plus the Alder CVR. We evaluated a number of new positons this month, but rapidly escalating valuations and our decreasing appetite for risk led us to deferring any action. However, we have a clear plan and watch list of stocks where we will move quickly in the event of second market correction.

We issued 1.98m new shares through the tap programme during the month, including 434,023 issued in respect of elections for the Scrip dividend option for the second dividend payment from FY2019.

We wish you and your families good health and thank you all for your continued support for BBH. We would remind you that you can submit questions to: shareholder_questions@bbhealthcaretrust.co.uk.

Paul Major and Brett Darke

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Standardised discrete performance (%)

12-month total return	1 year Apr 19 - Apr 20	2 years Apr 18 - Apr 20	3 years Apr 17 - Apr 20	since inception
NAV return (inc. dividends)	10.6%	38.0%	40.9%	59.6%
Share price	4.0%	30.3%	27.7%	44.0%
Share price (inc. dividends)	7.5%	38.3%	38.7%	56.4%
MSCI WHC Total Return Index	19.8%	37.0%	39.3%	53.3%

Sources: Bloomberg & Bellevue Asset Management (UK) Ltd., 30.04.2020

NAV return and share price returns are adjusted for dividends paid during period where started (but not assuming reinvestment)

Note: Past performance is not a guide to future performance. The value of an investment and the income from it may fall as well as rise and is not guaranteed

SUB SECTOR BREAKDOWN

Specialty Pharma	24.8%
Managed Care	15.7%
Biotech	14.9%
Diagnostics	13.9%
Med-tech	9.6%
Pharma	7.2%
Healthcare IT	5.1%
Services	4.2%
Tools	3.7%
Dental	1.0%

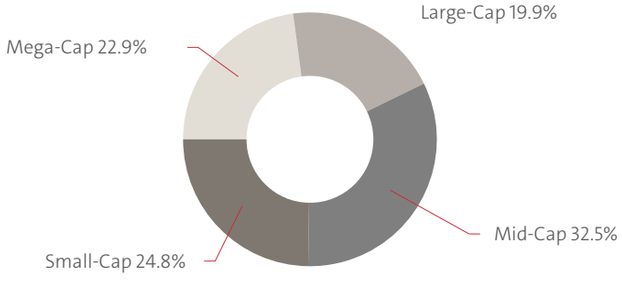
Source: Bellevue Asset Management, 30.04.2020

TOP 10 HOLIDINGS

Anthem	7.3%
Bristol Myers Squibb	7.2%
Esperion	7.1%
Hill-Rom Holdings	4.9%
Insmed	4.7%
Humana	4.7%
Alnylam Pharmaceuticals	4.2%
CareDx	4.2%
Charles River	4.2%
Evolent Health	3.8%
Total	**52.5%**

Source: Bellevue Asset Management, 30.04.2020

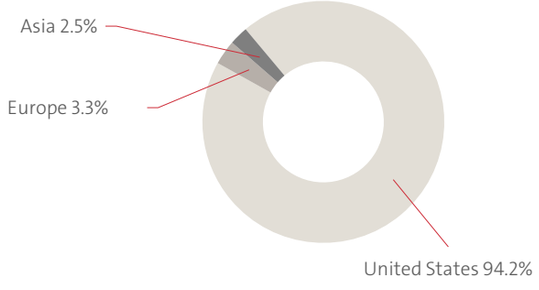
MARKET CAP BREAKDOWN



Source: Bellevue Asset Management, 30.04.2020

"Mega Cap >$50bn, Large Cap >$10bn, Mid-Cap $2-10bn, Small-Cap <$2bn."

GEOGRAPHICAL BREAKDOWN (OPERATIONAL HQ)



Source: Bellevue Asset Management, 30.04.2020

"two companies representing ~5% of the portfolio have a non-US legal domicile (primarily for tax reasons) but operate out of the United States and their primary stock market listing (in terms of volume traded) is in the United States".

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INVESTMENT FOCUS

- The BB Healthcare Trust invests in a concentrated portfolio of listed equities in the global healthcare industry (maximum of 35 holdings)
- Managed by Bellevue group ("Bellevue"), who manage BB Biotech AG (ticker: BION SW), Europe's leading biotech investment trust
- The overall objective for the BB Healthcare Trust is to provide shareholders with capital growth and income over the long term
- The investable universe for BB Healthcare is the global healthcare industry including companies within industries such as pharmaceuticals, biotechnology, medical devices and equipment, healthcare insurers and facility operators, information technology (where the product or service supports, supplies or services the delivery of healthcare), drug retail, consumer healthcare and distribution
- There will be no restrictions on the constituents of BB Healthcare's portfolio by index benchmark, geography, market capitalisation or healthcare industry sub-sector. BB Healthcare will not seek to replicate the benchmark index in constructing its portfolio

FIVE GOOD REASONS

- Healthcare has a strong, fundamental demographic-driven growth outlook
- The Fund has a global and unconstrained investment remit
- It is a concentrated high conviction portfolio
- The Trust offers a combination of high quality healthcare exposure and targets a dividend payout equal to 3.5% of the prior financial year-end NAV
- BB Healthcare has an experienced management team and strong board of directors

MANAGEMENT TEAM

Paul Major

Brett Darke

GENERAL INFORMATION

Issuer	BB Healthcare Trust (LSE main Market (Premium Segment, Offical List) UK Incorporated Investement Trust
Launch	December 2, 2016
Market capitalization	GBP 637.6million
ISIN	GB00BZCNLL95
Investment Manager	Bellevue Asset Management (UK) Ltd.; external AIFM
Investment objective	Generate both capital growth and income by investing in a portfolio of global healthcare stocks
Benchmark	MSCI World Healthcare Index (in GBP) - BB Healthcare Trust will not follow any benchmark
Investment policy	Bottom up, multi-cap, best ideas approach (unconstrained w.r.t benchmark)
Number of ordinary shares	442 751 085
Number of holdings	Max. 35 ideas
Gearing policy	Max. 20% of NAV
Dividend policy	Target annual dividend set at 3.5% of preceding year end NAV, to be paid in two equal instalments
Fee structure	0.95% flat fee on market cap (no performance fee)
Discount management	Annual redemption option at/close to NAV

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