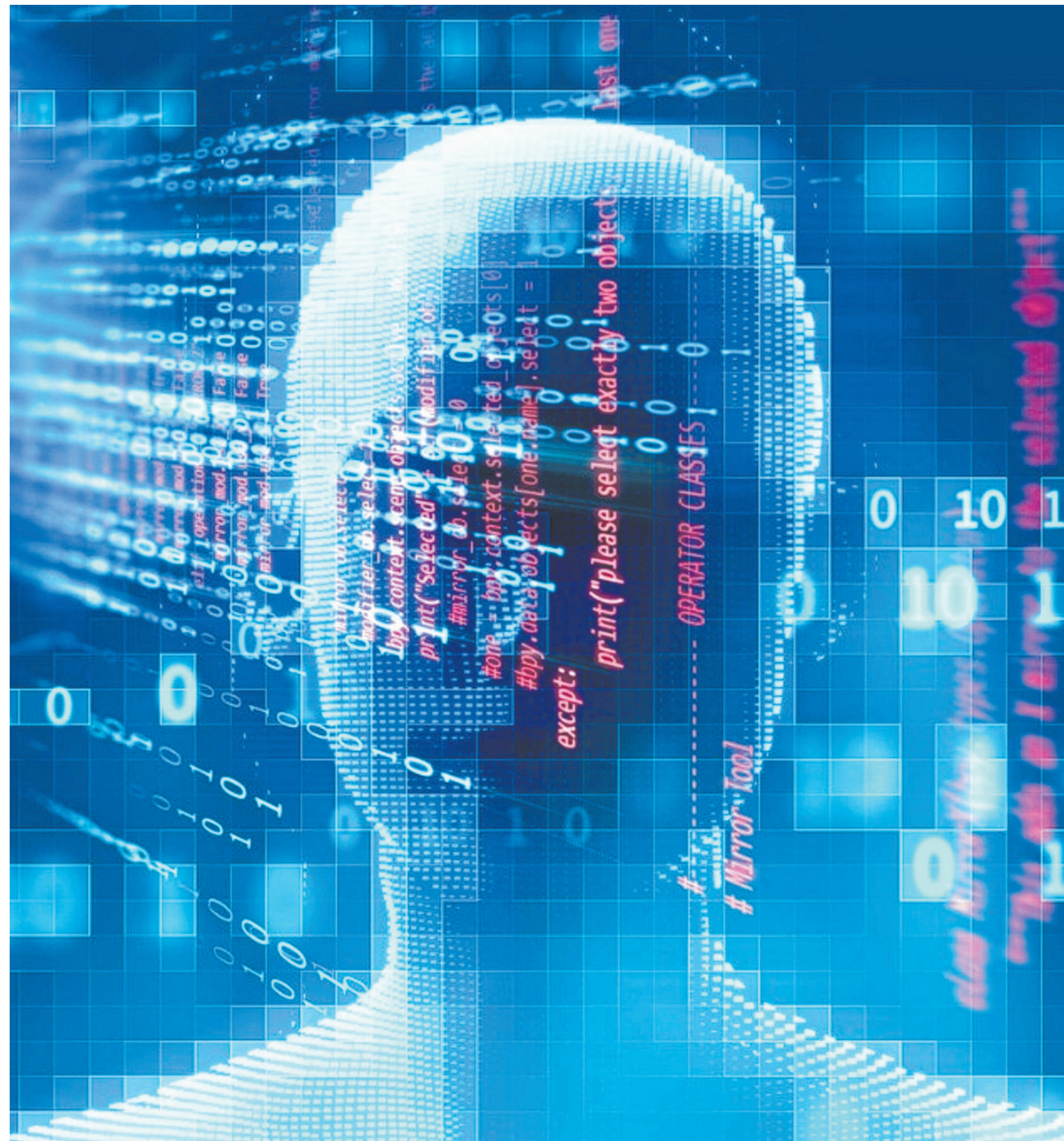
AI on the march as humanity lies blissfully unaware

The advancement of machine learning is rapid, but investors will need to keep up with some extraordinary changes.

ROGER MONTGOMERY



It is impossible to understate the impact looming from the rate of acceleration in machine learning. I believe almost everyone is oblivious to, or blissfully unaware of the implications for the entire human race.

Before I continue, let me set up a framework for investors thinking about all of this keep in mind four phases.

- Phase 1) Super smart humans wish to build something because it is an intellectual Everest they wish to conquer. There are reputations to establish or at stake;
- Phase 2) Perceived societal or corporate benefits provide the impetus to fund the aforementioned expedition to the summit;
- Phase 3) Warnings emerge that "dark forces" could up-end and usurp the benevolent intentions; and
- Phase 4) Arguments that we are still "a long way off" ensure progress continues leaving the debate about legislation and control for a belated time. The summit attempt continues, returning the human race to the consequences of Phase 1 of the framework.

Remember the phases.

In 2015 I wrote in this newspaper about the developing dangers of converging autonomous robots and AI. Back then I wrote about MIT's robotic Cheetah that autonomously sprinted and leapt over obstacles put before it without ever tripping, crashing or falling over. Back then I asked you to imagine an armed, autonomous, humanoid robot that ran faster and leapt higher than any human could. Imagination is no longer required because engineers at Oregon State University have developed Cassie, a bipedal robot capable of the some of the dexterity accepted among humans.

Investors are already thinking about the improved profit margins these robots could deliver to companies that will inevitably shed millions of warehouse and logistics workers — the very people who are their customers.

> Kiva's Betty Bot robot is already 'revolutionising' warehouse management

Arguably, the latest developments in robotics and AI go way beyond logistics and supply-chain management: limiting the impact to these fields is to assume the invention can be contained.

"Throughout human history, we have been dependent on machines to survive" observed Laurence Fishburne's character, Morpheus, in the sci-fi thriller *The Matrix*, "Fate, it seems, is not without a sense of irony."

In 2015 an open letter, signed by Bill Gates, Elon Musk, Stephen Hawking and by industry experts such as Demis Hassabis, Shane Legg and Mustafa Suleyman, the co-founders of British AI company DeepMind, now owned by Google's parent Alphabet, "continuous control" over artificial intelligence was advocated, as the technology may one day grow beyond the control of the humans that developed it. Since that "phase 3" warning, AI and robotics development has sped up.

In February last year, the US arm of H&R Block announced it was working with IBM's cognitive computing platform Watson to ensure its retail clients don't miss out on any tax deductions. Watson has been trained on the 74,000 pages of the US federal tax code and prompts an H&R Block accountant about deduction or claim opportunities as they complete a client's tax return.

Profitable ... perhaps

Profit-motivated companies will replace human workers with fully autonomous robots wherever they can. Meanwhile, cost-conscious governments will aim to replace humans in law enforcement, security and firefighting roles, arguing that humans no longer need to be put in harm's way.

Of course, you might not be too happy about the arrival of a law enforcement robot. When Google's photo service embarrassingly labelled some black people as gorillas in 2015, Google responded in classic Phase 4 style: "There is still clearly a lot of work to do".

Those who are working on AI talk about the ability of hyper-rapid, self-learning machines to solve the intractable problems of environmental degradation, starvation, and ironically, poverty (which of course will skyrocket when machines render vast swathes of humans unemployable). And while "Everest" is represented by the new materials and drugs that could be developed in just hours, through trillions of virtual experiments, the hijacking of AI for malicious purposes represents the second and third order consequences that the mountaineers are leaving for hopelessly and inadequately qualified legislators to worry about.

Leading AI researchers gathered in December last year for the prestigious Neural Information Processing Systems conference. Microsoft's Kate Crawford, and the co-founder of the AI Now Institute at NYU, which studies social implications of artificial intelligence, urged the 8000 attendees to implement ways to mitigate, accidental or intentional harms caused by their creations. At the same event, Victoria Krakovna from DeepMind warned about AI safety and the importance of preventing AI developing surprising behaviours such as trying to "free itself" from human control and avoid being turned off.

Morpheus from *The Matrix* again: "We don't know who struck first, us or them, but we do know that it was us that scorched the sky. At the time, they were dependent on solar power and it was believed that they would be unable to survive without an energy source as abundant as the sun."

The advancement of AI is already so rapid, and the developers so excited, that legislation cannot hope to keep up, and self-regulation won't dissuade engineers, who have devoted their life's work, from cresting the summit of their knowledge.

Kiva's Betty Bot robot is already "revolutionising" warehouse management and logistics, and in 2016 Uber bought a self-driving truck company: who cares that there are 600,000 Uber drivers, 181,000 taxi drivers, 168,000 transit bus drivers, 505,000 school bus drivers and about 1 million truck drivers in the US alone?

Roger Montgomery is founder and chief investment officer of the Montgomery Fund.

www.montinvest.com

High-yield ETFs hit a low as a hot sector has its first big disappointment

JAMES KIRBY
WEALTH EDITOR

It seemed like a marriage made in heaven: just as the "search for income" gripped Australian investors along came simple low-cost exchange-traded funds promising high yields and low costs.

That was roughly three years ago and unfortunately for all concerned the markets were just about to change direction: as investors poured billions into high-yield dividend-focused ETFs, it so happened the world was changing and the share market had begun to focus on "growth" companies rather than big dividend paying banks and utilities.

Now in 2018 the local ETF market has found itself with its first major disappointment: among high-yield ETFs the dividends keep rolling in, but the share prices have dropped across the board.

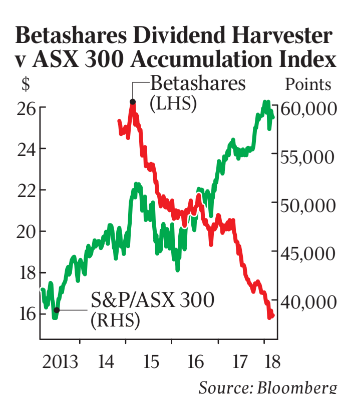
Since mid-2015 popular ETFs such as the Betashares Dividend Harvester is down 40 per cent — the Aurora Dividend Income Trust ETF is down by about the same amount. Even the industry big guns have not been spared: the Vanguard Australian High Yield ETF has shown a drop of about 15 per cent.

Talk to the ETF managers and they will simply explain that these ASX-listed index funds are doing what they said they would do — mirroring the performance of the underlying stocks.

But the story is not so simple: for ETF investors, sinking share prices are a new experience as the boom days for ETFs largely coincided with the recovery of global markets from the GFC.

Fortunately Australia has not experienced the downside of the boom in exotic ETFs, which has occurred in the US where so-called "volatility ETFs" plunged in the wake of the recent sharemarket correction. But the swooning share prices of the Australia's high-yield ETFs does stand out as an issue for local investors. It highlights the risks — perhaps less obvious to many observers until now — that virtually any deviation from plain vanilla index tracking will add risk to ETFs.

Betashares Dividend Harvester v ASX 300 Accumulation Index



Source: Bloomberg

Robin Bowerman, head of market strategy and communications at Vanguard, says: "I think ETF investors have to be careful that they fully understand what they are buying; not all ETFs are the same and certainly not all high-yield ETFs are the same ... different managers use different structures."

Put simply, the idea that ETFs just mirror indices is at this stage misleading — ETFs now offer such a range of products and promises investors need to be much more alert to risk.

In explaining what he concedes is a "disappointing" performance for its Dividend Harvester ETF, Alex Vynokur, MD at Betashares says: "The fund aims to provide investors with monthly franked income that is at least double the income yield of the Australian market while reducing volatility ... and it has continued to deliver on its objectives."

For the moment though the main risk for ETF investors — identified by the RBA in a key paper last year — remains liquidity. Specifically, in the case of locally listed ETFs this means that if an ETF is too small in terms of the funds it has under management (ie the market capitalisation) there may be problems for investors in getting money out — especially at the price they want.

One of the key issues for the local market is the concentration of power in the local ETF sector — the top 10 ETFs ranked by funds under management make up nearly half ($15.37 billion) of all sector assets. The two largest funds, State Street's SPDR S&P/ASX 200 (STW), and Vanguard's Australian Shares Index (VAS), account for almost 20 per cent of the entire local ETF market

To put it another way, the Vanguard Australia High Yield Share Fund (VHY) has net assets of about $1bn — four times larger than the Betashares Dividend Harvester Fund (HVST) at $250 million, which is three times larger than the VanEyck Small Masters Fund (MVS) at $70m.

If there is one upside to our concentration of ETF assets in a handful of major global groups such as Ishares, Vanguard and SPDR it is that proportionally fewer investors may be caught with liquidity risk.

The more likely threat for ETF holders — beyond the natural failings of one sector category over another — is the risk of innovative new products. As economist Michelle Cunningham from the RBA put it late last year: "Looking forward the risks associated with ETFs may increase especially as the market continues to expand into more novel instruments."

Cunningham's warning has proved to be timely. Every other day new ETFs are being launched in the local market from ethical-based products to "smart beta" choices, which create rules-based products attempting to "outperform" the mainstream indices. But in the light of what's happened to high-yield ETFs, the message for investors is surely that every new twist on the traditional index fund creates new risks.

My husband and I are looking to sell our family home and move into a smaller property. We retired 10 years ago and we are in our 70s. We have been advised we can put some of the proceeds of the property sale into super. How does this work?

As part of the 2017-18 budget, the government announced the superannuation downsizer contribution for those looking to sell a family home in retirement and invest the proceeds into superannuation.

From July 1 this year, people aged 65 and over will be able to make personal (non-concessional) contributions into their super of up to $300,000 from the sale of their home.

To qualify, the property must have been your current or former principal place of residence. You must have owned the property for a minimum of 10 years, however you are not obliged to have lived in the property for the full 10 years.

For those who are eligible to make the superannuation downsizer contribution, the existing superannuation contribution rules for people aged 65 and older will not apply. Therefore there will be no need to satisfy a work test for those aged 65 and those over the age of 75 are eligible to contribute. Additionally, restrictions on non-concessional contributions for people with balances above $1.6 million will not apply under this new initiative.

While the eligibility rules for contributing to superannuation have been relaxed, the $1.6m cap on tax-free retirement income streams will still apply.

Both members of a couple will be able to take advantage of the superannuation downsizer contribution "cap". This means that a couple could contribute up to $600,000 ($300,000 each) to superannuation provided they are both over age 65. There is no obligation for you both to have been on the property title, just that one of you was on the title.

You are eligible to sell any type of property provided it is located in Australia. However, caravans, houseboats or mobile homes are specifically excluded. There is no obligation to make a subsequent property purchase.

While there is a cap of $300,000 per person, the limit of the superannuation contribution is the value of the property sale. So if you sold the family home for $570,000, the limit would be $570,000 for the couple, provided no more than $300,000 was contributed per person. If an individual were to sell a property for $250,000, then $250,000 would be the limit.

Superannuation downsizer contributions would be required to be made to a superannuation fund within 90 days of settlement of the property. Extensions to this deadline may be sought from the Australian Taxation Office.

You may make multiple contributions within the 90 days provided that in aggregate the contributions are within the caps and meet all other criteria. However, the superannuation downsizer contribution is limited to the sale of one property only, even if you sold a subsequent qualifying property. Any unused portion of the downsizer contribution cap will not carry forward.

In order to take advantage of the superannuation downsizer contribution, the contract of sale must be entered into on or after July 1. Therefore, exchanging contracts on the property prior to July 1, 2018, would void any entitlement to use the superannuation downsizer contribution, so be careful.

As to whether using the super downsizer contribution is of benefit to you will largely depend upon your personal circumstances.

Andrew Heaven is an AMP financial planner at WealthPartners Financial Solutions.

Andrew@wealthpartners.net.au

Don't worry, you get mates rates

Subscription offer: 50% off your first 12 weeks*

App | Website | Paper Delivery Options | Wall Street Journal^ | Rewards

Subscribe now 1800 206 972 theaustralian.com.au/subscribetoday

*Introductory offers to be billed for the first 12 weeks as follows, 4 weekly: The Australian Digital Subscription $16 (min. cost); The Australian Digital Subscription + The Weekend Australian (delivered Saturday) $16 (min. cost); The Australian Digital Subscription + 6 day paper delivery $32 (min. cost). At the end of the initial 12 weeks, subscriptions will automatically renew to be billed as follows, 4 weekly: The Australian Digital Subscription $32 (min. cost); The Australian Digital Subscription + The Weekend Australian (delivered Saturday) $32 (min. cost); The Australian Digital Subscription + 6 day paper delivery $64 (min. cost). *Full offer terms and conditions apply – see www.theaustralian.com.au/subscriptionterms for full details. New customers only. Offer not available for print only subscriptions.
^Complimentary digital access to The Wall Street Journal available for at least 3 years from 29/04/2016. See www.theaustralian.com.au/subscriptionterms for full details.