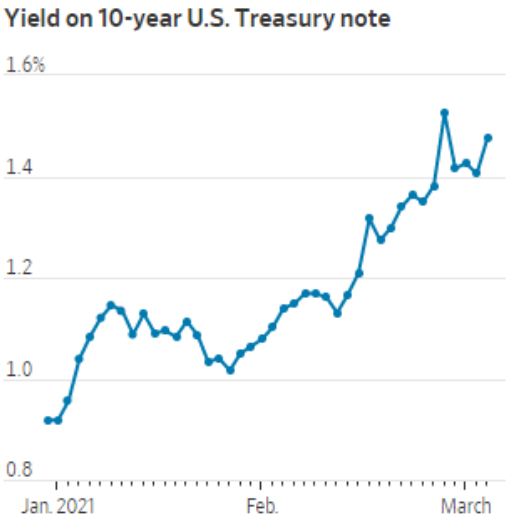
Guinness Atkinson
Global Innovators Fund (IWIRX/GINNX)
Managers Update – March 2021

GUINNESS ATKINSON FUNDS

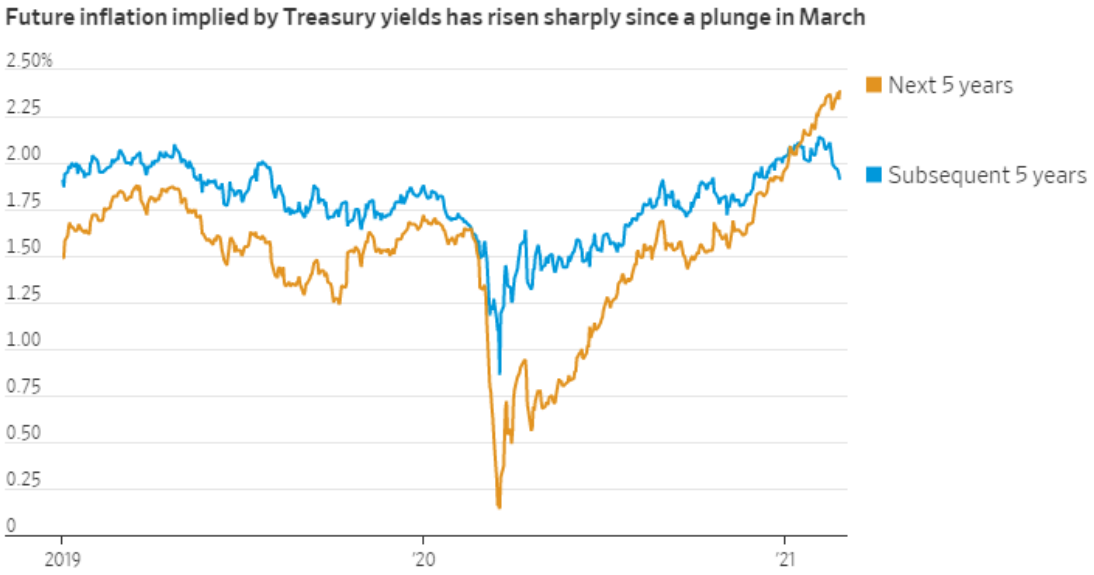
February in review:

With vaccine rollouts underway, COVID-19 case numbers falling in many regions, and further government stimulus packages in the pipeline, investors turned their attention to the possibility of higher inflation and thus higher rates in the nearer term. The resultant increase in US 10Y yields caused a rotation out of the more interest sensitive areas such as IT towards the end of the month.

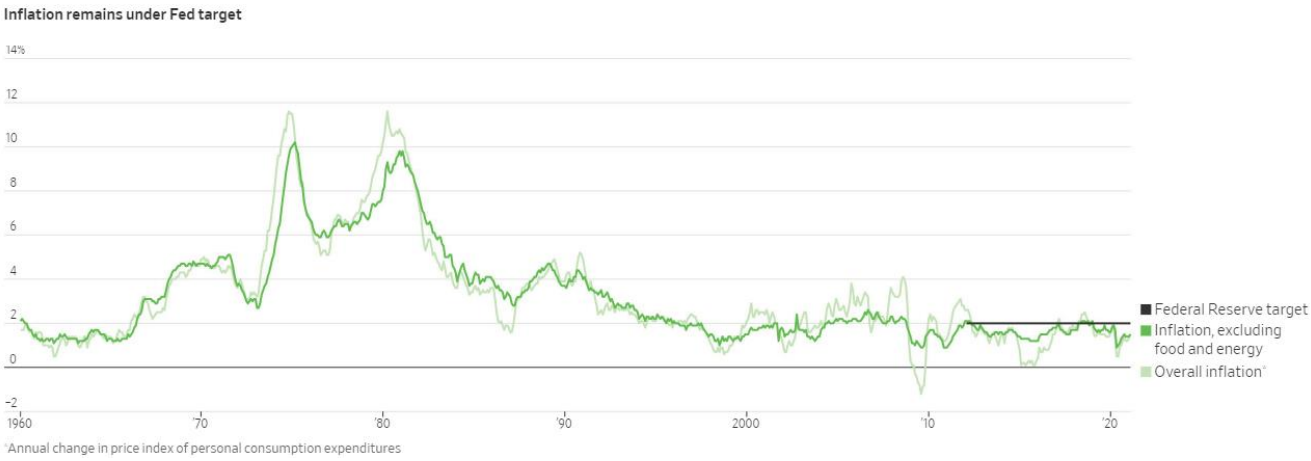
While this was a drag on the portfolio – with IT, the fund's largest overweight exposure relative to the benchmark - the market's focus on higher inflation should not necessarily be viewed as a negative. Inflation in the US has continued to trend below the US Fed's 2% target even with quantitative easing post the financial crash unable to stimulate substantial increases in inflation. However, with unprecedented monetary and fiscal packages in response to the COVID-19 pandemic – far greater than that of the financial crisis – investors are now pricing in higher inflation in the next 5 years.



Source: Tullet Prebon. Data as of March 3, 2021

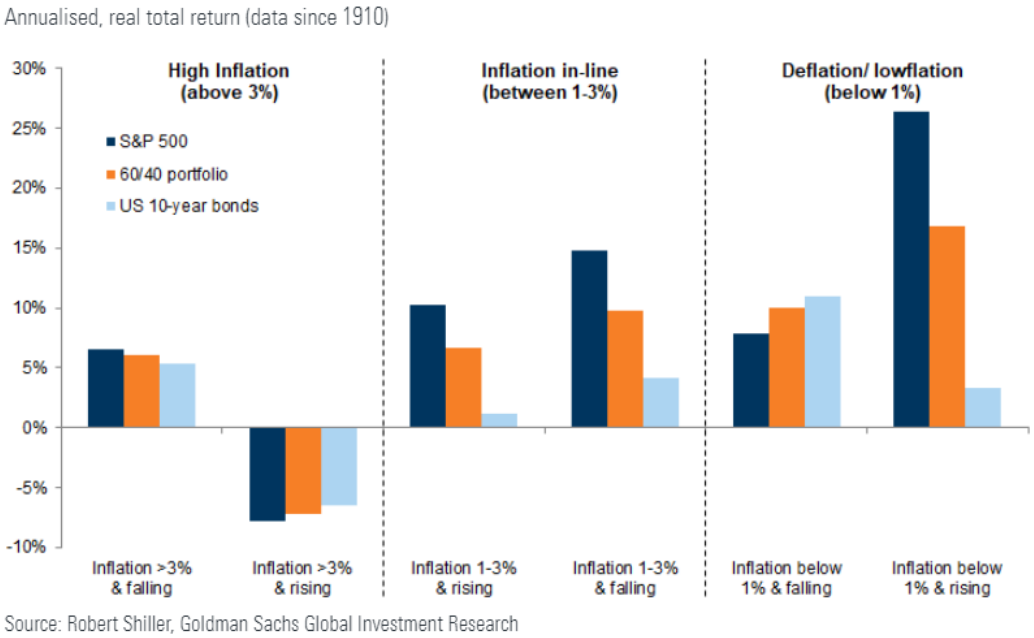


Source: Federal Reserve Bank of St. Louis. Data as of March 3, 2021



Source: U.S. Commerce Dept. (inflation), Federal Reserve (target). Data as of March 3, 2021

However, rising inflation expectations and thus interest rates, from moderate base levels, can be taken as a sign of positivity with economies returning to growth. What is more, history shows us there is reason to be optimistic from an equity perspective, with increases in inflation expectations from a moderate base, correlated with strong equity markets.



Source: Robert Shiller, Goldman Sachs Global Investment Research. Data as of February 28, 2021

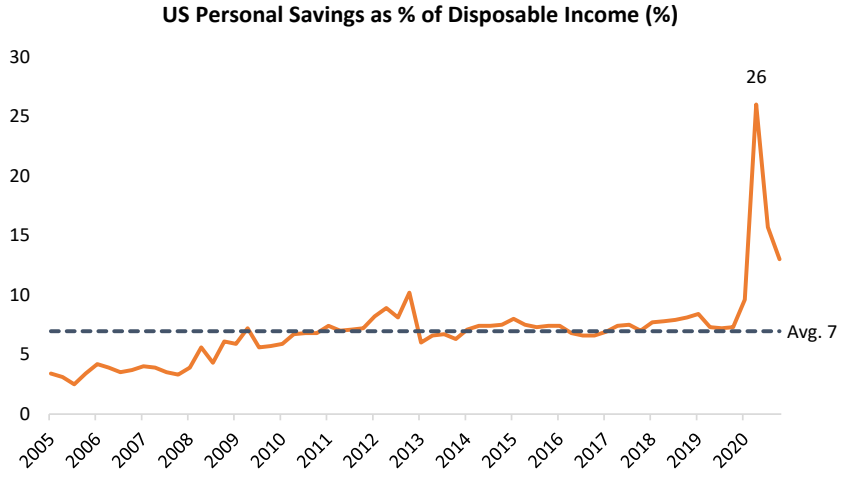
In addition, the economic growth outlook in the short to medium term continues to look very good.

Let us consider the equation for GDP:

GDP = Consumption + Investment + Government spending + Net Exports

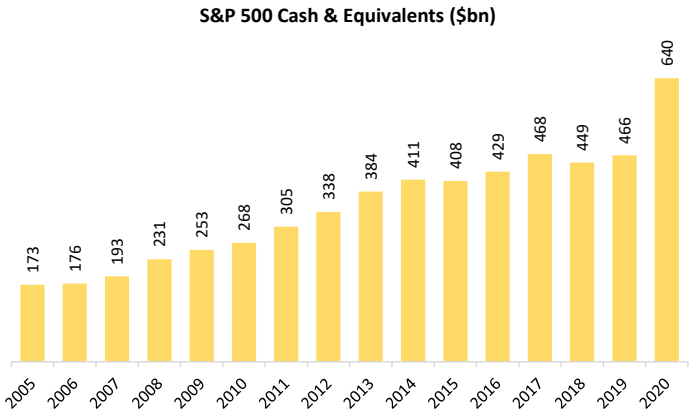
Looking at some of the components we have:

- **Consumption**: The average consumer is flush with cash while the vaccine rollout and subsequent unlocking should unleash consumer spending.



Source: Bloomberg. In USD. Data as of February 26, 2021

- **Investment**: The average company also has ample cash on-hand having borrowed cheaply and will now need to invest in capital expenditure (capex) and research and development (R&D) to maintain competitive edge, keep up with demand and restock inventory. S&P500 cash on balance sheets is up c 40% on 2019.



Source: Bloomberg. In USD. Data as of February 26, 2021

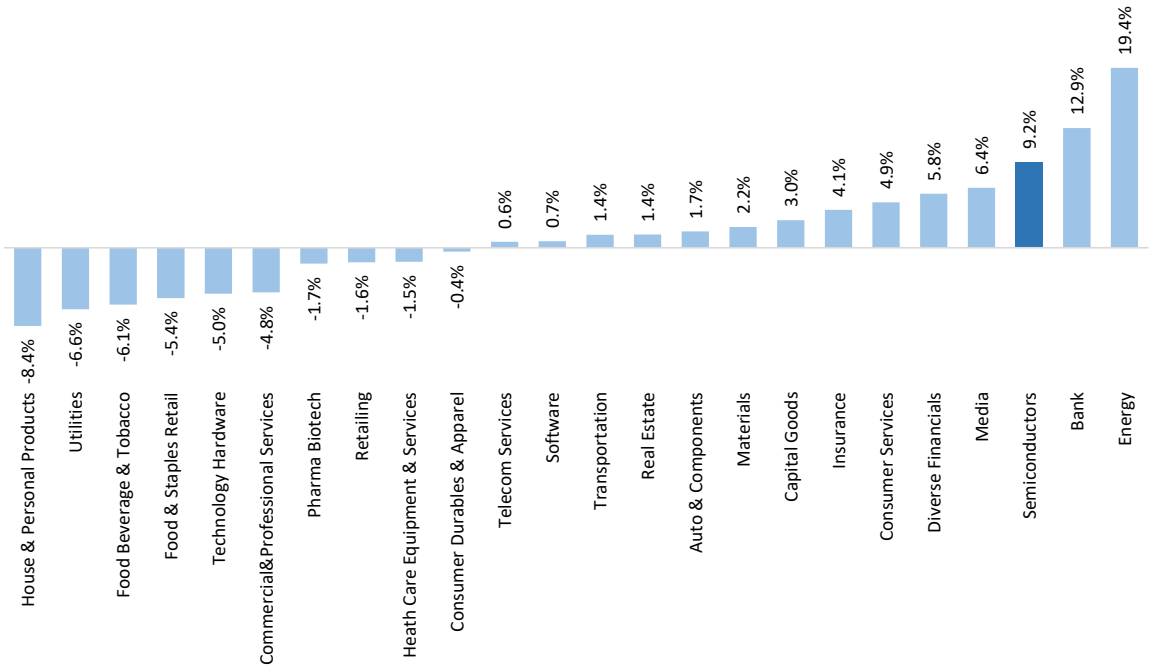
- **Government Spending:** The US and European Fiscal stimulus plans are very large. The current Biden stimulus bill going through Congress is c$1.9 trillion compared to US GDP of $21.4 trillion. This is on top of the two previous bills which totaled $3.1 trillion.

In all, there is good reason to be optimistic from an equity perspective as the world tentatively reopens and a new normality ensues, with the potential unlocking of pent-up demand/spending.

Semiconductors leading the market recovery:

Over the past year, we have seen COVID-19 accelerate many of the innovative changes that were taking place across sectors from contactless payments and cloud computing to video streaming and robotics. The key enabler of these technologies is semiconductors. Year-to date, the semiconductor industry has continued in its strength with the majority of businesses reporting strong demand, while short-term chip shortages only add to a bullish outlook.

MSCI World Industry Performance Year-to-Date (USD)



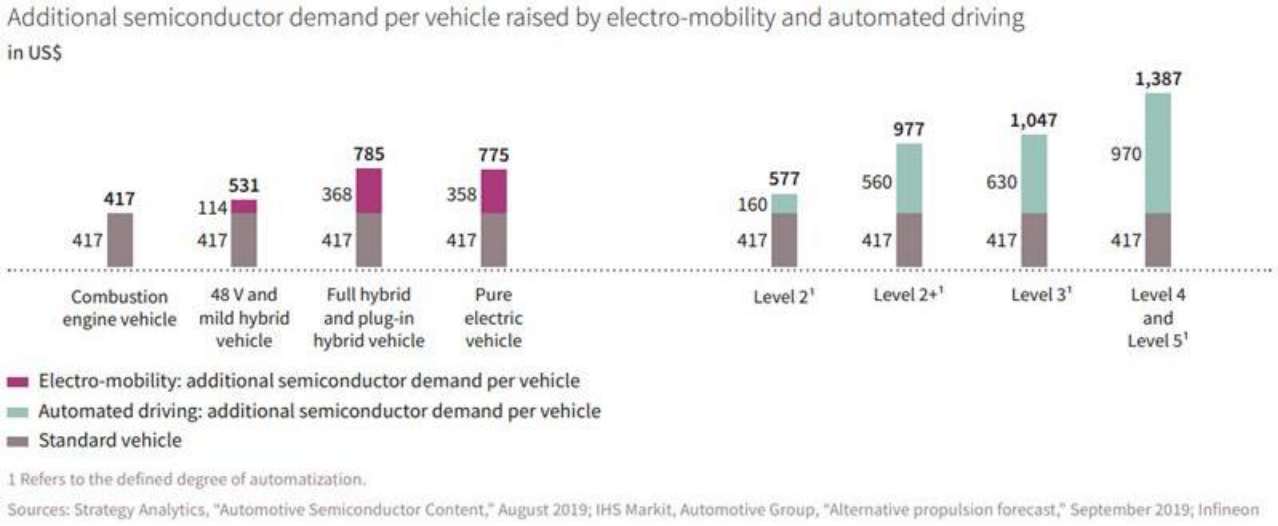
Source: Bloomberg. In USD. Data as of February 26, 2021

Indeed, there is currently a short-term supply issue related to COVID-19, particularly within the auto industry, as a consequence of a number of factors:

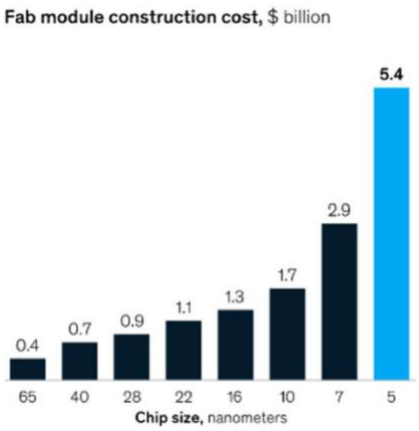
1. The automotive industry cut their orders for semiconductors as they saw demand for new cars fall in Q2 2020. Now their suppliers have allocated capacity to other industries.
2. Work from home has led to the highest growth rate for PCs in a decade, as well as TVs and monitors.

3. Demand for 5G smartphones has doubled.
4. Increased demand for cloud applications means more demand from datacenters.
5. Cryptocurrency mining has rebounded as cryptocurrencies have rallied.
6. COVID-19 caused supply chain disruption.

Looking closer at why semiconductor fabs, such as TSMC, are unwilling or unable to allocate capacity back to the automotive industry, we find that the automotive industry does not have substantial bargaining power. For example, Apple's iPhone silicon needs are more than the entire automotive industry, and the iPhone is only 25% of the smartphone market. So, any individual auto manufacturer does not have much bargaining power. Semiconductor fabs also want to be running at full capacity and as such cannot redistribute capacity based on short-term supply imbalances in favor of more secure long-term contracts. However, it should be noted that the automotive industry will be an increasingly important driver of semiconductor demand as the volume and sophistication of silicon per vehicle increases with the transition to electric and more automated transportation. According to Infineon, one of the leading automotive semiconductor suppliers and fund holding, the US$ semiconductor content per vehicle should increase almost 2x for pure electric vehicles vs traditional combustion engine vehicles, while Level 4 and 5 autonomous vehicles will demand 3x the semi content per vehicle.



Further still, as we have discussed before, almost all of our Innovation themes point towards increasing demand for semiconductors. There is a growing realization in the US and Europe of how strategically critically important it is to have leading edge semiconductor manufacturing capacity closer to home. The world is extremely reliant on TSMC's Taiwan-based plants which, given what China has done in Hong Kong, is worrying certain policymakers. However, the cost and expertise to build new leading edge fabs is a huge barrier with the estimated cost to construct a leading-edge 5nm fab module almost double the cost for 7nm.



Source: McKinsey. Data as of February 28, 2021

The US Semiconductor industry estimates it will need $50b funding from Congress to make it competitive. This might not even be

enough if you consider TSMC is going to spend $28b on CAPEX in 2021 alone. Currently the "Creating Helpful Incentives to Produce Semiconductors for America Act (CHIPS)" calls for $10b for a new federal grant program.

Either way the outlook for Semiconductor equipment companies remains very attractive:

1. They have very high barriers to entry given the increasing levels of capital and expertise required,
2. they are quasi-monopolies,
3. they have very robust balance sheets (LAM Research and Applied Materials have more cash than debt, for example),
4. they are growing rapidly, and profitably – ROC of US Semiconductor equipment companies has been growing since 2013, and
5. valuations are not demanding (particularly relative to other parts of the IT sector).

We thank you for your continued support.

Portfolio Managers

Matthew Page, CFA

Dr Ian Mortimer, CFA

Summary performance

For the month of February, the Guinness Atkinson Global Innovators Fund provided a total return of 2.48% (USD) against the MSCI World Index net total return of 2.56% (USD). Hence the fund underperformed the benchmark by 0.08% (USD).

With nations in lockdown and vaccine rollouts, in many cases, continuing at a strong pace, equity markets drove higher in February with the re-opening of economies a real possibility for the second half of the 2021. However, market gains were tempered towards the end of the month as COVID-19 mutations made headlines, while a rise in bond yields on the expectation of higher inflation, sent equity markets down, led by more interest rate sensitive sectors such as IT. While the fund's overweight position to IT was a drag from an allocation perspective, strong stock selection from the fund's semiconductor holdings, ultimately led to IT as the fund's main contributor to relative performance. Conversely, investor's rotation into Energy and Bank stocks on higher inflation expectations was a drag on performance with the fund owning no stocks in these areas.

as of 02.28.2021 (in USD)	**1 year**	**3 years annualized**	**5 years annualized**	**10 years annualized**
Global Innovators, Investor Class[1]	47.02%	15.63%	20.07%	14.47%
Global Innovators, Institutional Class[2]	47.38%	15.92%	20.38%	14.62%
MSCI World Index NR	29.34%	10.78%	12.39%	9.41%

as of 12.31.2020 (in USD)	**1 year**	**3 years annualized**	**5 years annualized**	**10 years annualized**
Global Innovators, Investor Class1	36.17%	15.78%	18.02%	15.07%
Global Innovators, Institutional Class2	36.46%	16.06%	18.32%	15.21%
MSCI World Index NR	15.90%	10.51%	12.18%	9.86%

All returns after 1 year annualized.

Performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the Fund may be lower or higher than the performance quoted. For most recent month-end and quarter-end performance, https://www.gafunds.com/our-funds/global-innovators-fund/#fund_performance or call (800) 915-6566.

[1] Investor class (IWIRX) Inception 12.15.1998 Expense ratio* 1.24% (net); 1.35% (gross)

[2] Institutional class (GINNX) Inception 12.31.2015 Expense ratio* 0.99% (net); 1.21% (gross)

[2] Performance data shown for Global Innovators, Institutional Class (GINNX), prior to its launch date on 12/31/15, uses performance data from the Global Innovators, Investor Class (IWIRX).

*The Advisor has contractually agreed to reimburse expenses (excluding Acquired Fund Fees and Expenses, interest, taxes, dividends on short positions and extraordinary expenses) in order to limit the Fund's Total Annual Operating Expenses to 0.99% for the Institutional class and 1.24% for the Investor class through June 30, 2021. To the extent that the Advisor absorbs expenses to satisfy this cap, it may recoup a portion or all of such amounts absorbed at any time within three fiscal years after the fiscal year in which such amounts were absorbed, subject to the expense cap in place at the time recoupment is sought, which cannot exceed the expense cap at the time of waiver. The expense limitation agreement may be terminated by the Board of the Fund at any time without penalty upon 60 days' notice.

Mutual fund investing involves risk and loss of principal is possible. Investments in foreign securities involve greater volatility, political, economic and currency risks and differences in accounting methods. These risks are greater for emerging markets countries. The Fund also invests in medium and smaller companies, which will involve additional risks such as limited liquidity and greater volatility. The Fund's focus on the technology, internet and communications sectors are extremely competitive and subject to rapid rates of change.

Securities mentioned are not recommendations to buy or sell any security.

Current and future portfolio holdings are subject to risk.

Top 10 holdings for Global Innovators Fund, as of 02/28/2021:

1.	Applied Materials Inc	4.13%
2.	Lam Research Corp	3.73%
3.	Tencent Holdings Ltd	3.72%
4.	Alphabet Inc - A Shares	3.71%
5.	Infineon Technologies AG	3.70%
6.	KLA-Tencor Corp	3.64%
7.	ABB Ltd	3.59%
8.	Samsung Electronics Co Ltd	3.54%
9.	Microsoft Corp	3.53%
10.	NIKE Inc	3.46%

For a complete list of holdings for the Global Innovators Fund, please visit: https://www.gafunds.com/our-funds/global-innovators-fund/

The Fund's investment objectives, risks, charges and expenses must be considered carefully before investing. The statutory and summary prospectuses contain this and other important information and can be obtained by calling 800- 915-6565 or visiting www.gafunds.com. Read and consider it carefully before investing.

Earnings growth is not representative of the Fund's future performance.

MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets.

Return on Capital (ROC) is a calculation used to assess a company's efficiency at allocating the capital under its control to profitable investments,

One cannot invest directly in an index.

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