

ARK GLOBAL DISRUPTIVE INNOVATION FUND

Net returns as at 31 July 2023

	1 month	3 months	6 months	1 year	2 years p.a.	3 years p.a.	Since inception* p.a.
Fund growth return	12.58	37.35	33.15	18.97	-30.52	-11.55	1.96
Fund distribution return	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Total Fund return [‡]	12.58	37.35	33.15	18.97	-30.52	-11.55	2.01
MSCI All Countries World Index [^]	2.40	6.41	15.24	16.92	5.00	12.73	9.88

Past performance is not a reliable indicator of future performance. Taxes payable by investors have not been taken into account. The figures shown have been provided for illustrative purposes – they are unaudited and subject to change. The total returns shown are prepared on an exit to exit basis – they include all ongoing fees and expenses and assume reinvestment of all distributions.

* Inception date of the ARK Global Disruptive Innovation Fund: August 2018.

‡ Total Fund net returns are post fees, pre tax using redemption prices and assume reinvestment of distributions. Fund growth return is the change in redemption prices over the period. Fund distribution return equals Total Fund minus Fund growth return. Past performance is not an indicator of future performance.

[^] Reference Index shown for illustrative purposes only: MSCI All Countries World Index (with net dividends reinvested) expressed in Australian Dollars (unhedged).

Portfolio review

The Fund outperformed broad based global equities during the month (net).

Key contributors to absolute performance:

- **Roku** rallied after the company released its second-quarter results. Roku's platform revenue grew 11% year-over-year, as active accounts increased 16% to 73.5 million and streaming hours jumped 21%. Roku's second-quarter results reaffirm ARK's conviction in its potential to revolutionize digital streaming and displace linear TV incumbents. Moreover, the company also announced a partnership with Shopify to bring shoppable ads to its users earlier in the month.
- **Coinbase** and other crypto-related stocks like **Block** traded up after the company relisted Ripple's XRP after a landmark ruling by a U.S. District Court, which states that the coin is not a security in terms of sales to the general public. ARK maintains conviction in Coinbase's leadership across the crypto ecosystem.
- **DraftKings** appreciated after an analyst upgraded the stock, noting a materially faster ramp of new state openings and higher online betting from parlays and game mix.
- **Ginkgo Bioworks** shares rallied after the U.S. Intelligence Community awarded it a contract to develop a biosensor that can track the cellular histories of the microbial genome. As part of the collaboration, Ginkgo also intends to develop processes to retrieve this data so that the microbe's past exposures can be analyzed.

Key detractors from absolute performance:

- **Roblox** traded down following relatively little company specific news. Roblox provides a creator-first digital entertainment platform and a 3D engine, both of which allow third-party developers around the world to create games and experiences for users.
- **Materialise** shares fell following a earnings miss. Second quarter earnings disappointed, with GAAP EPS of -\$0.01, down 150% since reporting \$0.02 per share in the same period a year ago, despite year-over-year revenue growth of 11.6%. The company maintained its previous revenue and adjusted EBITDA guidance for the rest of 2023. Materialise is a company in the 3D printing / additive manufacturing sector.
- **3D Systems** continued to trade down after it announced its intention to acquire Stratasys last month. The company is targeting Aug 4th for the completion of talks with Stratasys. ARK continues to monitor these developments closely.
- **Beam Therapeutics** traded down on relatively little company-specific news. Beam Therapeutics is a clinical stage pharmaceutical company developing gene editing therapies that employ a cutting-edge, next generation base-editing technique, which could be beneficial for allowing less off-target edits.
- **Pacific Biosciences of California** traded down on relatively little company-specific news. ARK believes that PacBio, which is already the dominant supplier of long-read sequencing ("LRS") instruments and consumables, is well positioned to capitalise on what

ARK predicts will be a continued growth trend in the demand for LRS.

Market outlook

Broad-based global equity indices (as measured by the MSCI World) appreciated during the month. Artificial intelligence (AI) continues to be a focal of the market, thanks to provocative proofs of concepts and ChatGPT specifically. Increased demand for AI hardware is pointing toward a significant acceleration in software revenue growth. As companies develop AI-powered products and services, ARK estimates that software may generate up to \$8 of revenue for every dollar spent on AI hardware by 2030. In what could be “winner take most” opportunities, ARK believes companies with large pools of proprietary data and broad-based distribution should be best positioned to capitalize on AI use cases and reap the potentially dramatic productivity gains associated with generative AI.

Relative to the MSCI World Index, the Energy, Communication Services, and Financial sectors outperformed in July, while the Health Care, Consumer Staples, and Utilities sectors lagged. Some of the largest beneficiaries of the rotation to cyclical, Energy and Financial Services, could be disrupted significantly during the next five years. In ARK’s view, autonomous electric vehicles and digital wallets, including blockchain technologies, cryptocurrencies, and decentralized financial services (DeFi), will disrupt and disintermediate both Energy and Financial Services

During July, economic data was not as clear-cut. While the labor market seemed resilient, a number of leading indicators are warning of recession.

- With a strong correlation to Gross Domestic Product (GDP), the US Leading Economic Index (LEI) has dropped for 15 consecutive months, the longest streak of consecutive decreases since 2007-2008. In 2022, GDP declined for two consecutive quarters, a technical recession. During the last two quarters, Gross Domestic Income (GDI), which should equal GDP over time, has declined sequentially. The divergence in growth between GDP and GDI is begging the question about future revisions: will GDI be revised up or GDP down? ARK’s view is the latter.
- According to the Senior Loan Officer Opinion Survey (SLOOS), the willingness of banks to lend is plummeting, often a leading indicator of recession. Borrowing and lending play pivotal roles during economic expansions. The demand for commercial and industrial (C&I) loans is consistent with previous recession levels, and the Bank of America Fund Manager Survey suggests that commercial real estate could be the epicenter of the next financial crisis.
- US consumer sentiment remains at levels last seen during the Global Financial Crisis in 2008-2009 and

back-to-back recessions with double-digit inflation and interest rates during the early 1980s. Meanwhile, the personal saving rate has collapsed from 9.3% pre-COVID to 4.3% which, when coupled with historically low consumer sentiment, is pointing toward weakness in consumption growth. Adding to those concerns, the third largest category of non-housing debt, credit card balances have reached a record high level at ~\$1 trillion. Because interest rates on credit cards nearly doubled to 20-21% during the past ten years, the burden of credit card debt has intensified. Additionally, student loan payments are slated to resume this October, further pressuring consumer purchasing power.

Recent economic data and comments from the US Federal Reserve (Fed) appear to have tempered investors’ previous expectations of interest rate declines. Now, interest rate futures are pricing in a slowdown or recession and one or two more rate hikes before interest rates start to decline. Should an economic slowdown evolve into a hard landing, the slope of interest rate declines could steepen.

The Federal Funds Target Rate has surged 22-fold in the last year, a faster pace than all previous tightening cycles, including the one in 1980-1981 that crushed inflation, creating significant strains at regional banking and in commercial real estate. Bank deposits have dropped 4.0% year-over-year, the largest decline since 1948. ARK believes additional rate hikes will exacerbate this fragile situation.

While the Fed is determined to squelch inflation by increasing interest rates, the bond market has been signaling that it could be making a major mistake. Since March 2021, the yield curve (As measured by the difference between yields on the 10-year Treasury bond and the 2-year Treasury note) has flattened by 250 basis points, inverting from +159 to -91 basis points, the worst inversion since the early 1980s when the Fed was fighting entrenched double-digit inflation. This dynamic suggests that both real growth and inflation could surprise on the low side of expectations. In ARK’s view, the Fed is making decisions based on lagging indicators, employment and headline inflation, and ignoring leading indicators that are telegraphing recession and/or price deflation.

The Federal Reserve began increasing interest rates when the year-over-year Consumer Price Index (CPI), a lagging economic indicator, reached 8.5% on a year-over-year basis in March 2022. Shortly thereafter, an inflationary surge influenced by geopolitical pressures and inventory hoarding peaked at 9.1% year-over-year. Since then, CPI inflation has dropped to 3.0%, thanks to various deflationary forces, good, bad, and cyclical.

Innovation is a potential source of good deflation, as learning curves can cut costs and increase productivity. Yet, ARK believes many companies have catered to short-term-oriented, risk-averse shareholders, satisfying their demands for profits/dividends “now”. On balance, they

have leveraged their balance sheets to buy back stock, bolster earnings, and increase dividends. In so doing, many have curtailed investments and could be ill-prepared for the potential disintermediation associated with disruptive innovation. Saddled with aging products and services, they could be forced to cut prices to clear unwanted inventories and service debt, causing bad deflation.

If ARK is correct in their assessment that growth, inflation, or both will surprise on the low side of expectations, scarce double-digit growth opportunities should be rewarded accordingly. The adoption of new technologies typically accelerates during tumultuous times as concerned businesses and consumers change their behavior much more rapidly than otherwise would be the case. As a result, stocks of innovation-oriented companies have historically performed better and emerged as new market leaders toward the end of a bear market. ARK believes the coronavirus crisis and Russia's invasion of Ukraine have transformed the world significantly and permanently, suggesting that many innovation-driven strategies and stocks could be productive holdings during the next five to ten years.

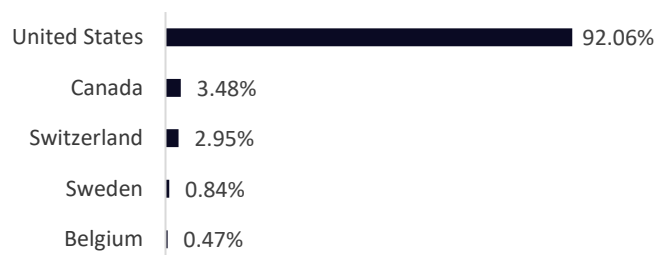
In ARK's view, the wall of worry bodes well for equities in the innovation space. The strongest bull markets climb walls of worry, a fact that those making comparisons to the tech and telecom bubble seem to forget. No wall of worry existed or tested the equity market in 1999. This time around, the wall of worry has scaled to enormous heights..

Top 10 holdings (underlying Fund*)

Security Name	% of Fund
Roku Inc	9.8
Tesla Motors, Inc.	8.0
Coinbase Global Inc	6.9
Zoom Video Communications Inc	6.4
Block, Inc	6.3
Draftkings Inc	4.3
Unity Software Inc	4.2
Uipath Inc	3.8
Twilio, Inc. Class A	3.5
Shopify, Inc. Class A	3.5

* The Fund invests in the Nikko AM ARK Disruptive Innovation Fund (Underlying Fund), a sub-fund of the Nikko AM Global Umbrella Fund. The Underlying Fund is an open-ended investment company (Company) established under Luxembourg law as a 'société d'investissement à capital variable' (SICAV).

Region exposure (underlying Fund*)



Portfolio composition (underlying Fund*)

Element	Exposure (%)
Digital Media	16.3
Cloud Computing	15.0
E-Commerce	8.7
Big Data & Machine Learning	7.3
Blockchain & P2P	7.1
Gene Therapy	6.7
Instrumentation	6.6
Mobile	5.9
Internet of Things	5.3
Beyond DNA	4.7
Molecular Diagnostics	3.0
Energy Storage	2.6
Social Platforms	2.6
Bioinformatics	2.0
Robotics	2.0
Autonomous Vehicles	1.0
3D Printing	0.9
Targeted Therapeutics	0.8
Development of Infrastructure	0.8
Next Generation Oncology	0.6

Features

Investment objective	The Fund aims to achieve a target average total return (before fees, expenses and taxes) of 10% to 15% per annum over a rolling five year period.	
Recommended investment time frame	7+ years	
Fund inception	August 2018	
Fund size	A\$69.7mn as at 31 July 2023	
APIR code	NIK1854AU	
Estimated management cost	1.35% p.a.	
Buy/sell spread	+/- 0.20%	
Platform availability	Asgard BT Panarama Hub24 Macquarie Wrap Mason Stevens Netwealth	OneVue Praemium uXchange Wealth02

Applications and contacts

Investment into the ARK Global Disruptive Innovation Fund can be made by Australian resident investors only.

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