## OVERVIEW

The Geometrica Fund returned **+4.3%**[1] in May net of all costs, bringing Calendar YTD returns to **+12.0%.**

Notable contributors included First Solar, DOF Group and Ambu, whilst detractors included Uber, Resmed, currency and shorts.

The AUDUSD rallied +2.8% during the month, acting as a notable headwind to performance given the vast majority of the Fund's holdings are in the shares of companies domiciled in offshore developed markets, notably the USA and Europe.

**The Fund is open to new investment** with relevant information available at **GeometricaFund.com**

## PORTFOLIO

**First Solar** (FSLR.US, mkt cap US$29.0bn) rose +54.1% during May.

As we noted in a recent letter, despite First Solar's earnings growing strongly, its share price had gone sideways, until very recently.

Given this pattern, First Solar's valuation and share price were analogous to a coiled spring, with the stock becoming cheaper and cheaper, until the valuation spring could coil no more.

We think what set it off was the market's realisation that First Solar is highly leveraged to AI's insatiable demand for renewable electricity.

First Solar has explicitly called out this linkage, most recently on 1 May 2024, but it wasn't until a UBS research report entitled "***A straight line from AI to FSLR***"[2] was published on 21 May 2024 that the stock took off.

The bulk of AI driven data center build out is occurring in six US states and the major US hyper-scalers (Amazon, Apple, Google, Meta) have all pledged to use renewable energy directly or indirectly for their electricity needs.

Solar dominates renewable energy capacity growth in the US (roughly 4:1 to wind installations) and First Solar dominates US utility scale solar module manufacturing (roughly 1/3rd market share).

There are a few ways to frame this opportunity…

**Understanding the demand driver - Generative AI Model architecture:** The 'transformer' model architecture was introduced in 2017[3] and is the powerhouse behind ChatGPT and other recent LLMs.

Broadly, this model architecture pushed natural language models to a new level; we are currently in a scaling paradigm where the transformer model continues to improve as we increase its size.

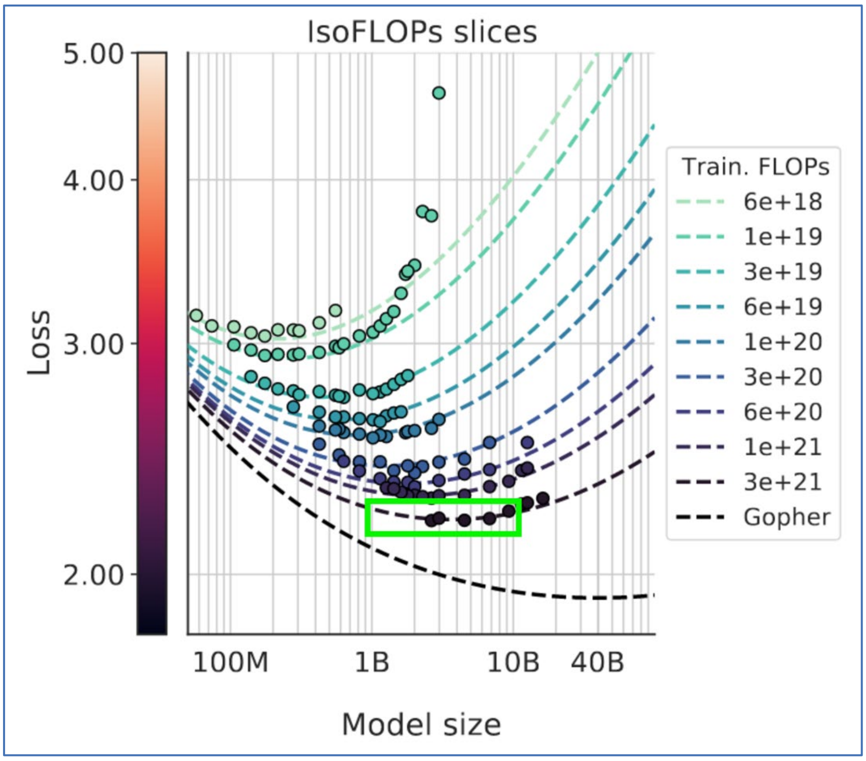
There is currently an exponential relationship between model size and performance – model size is and always has been proportional to energy consumption. Therefore, power demand for this application should also be exponential.

[1] Founder class lead series

[2] UBS Research, Jon Windham CFA, "*First Solar Inc. A straight line from AI to FSLR*" 21 May 2024.

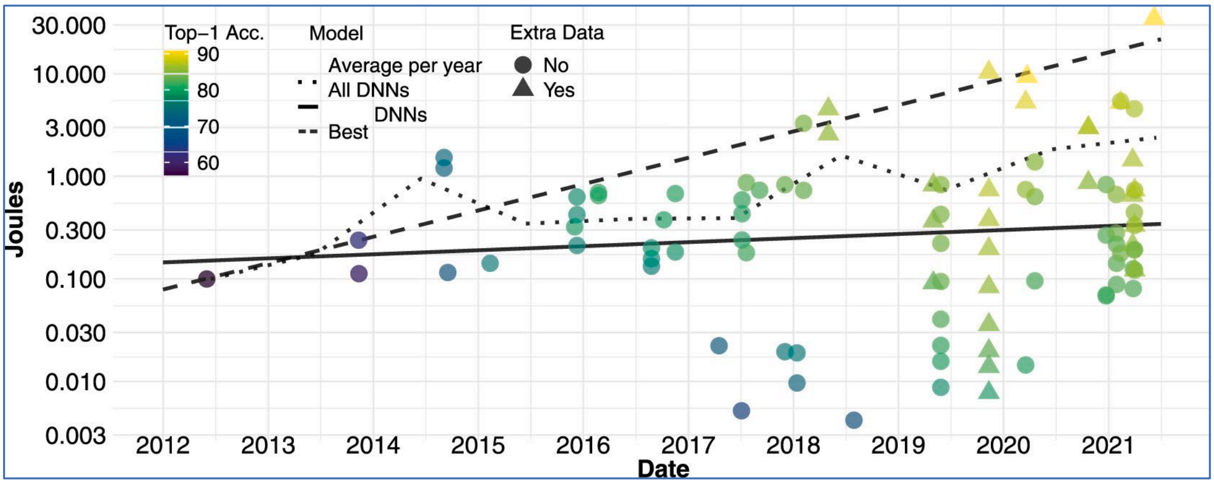
3"Attention is all you need": https://arxiv.org/abs/1706.03762

## Bigger is better for AI models




*Source: https://github.com/adam-maj/deep-learning*

## Success demands … more electricity




*Source: https://www.sciencedirect.com/science/article/pii/S2210537923000124*

**Data center density:**

US data center power usage currently accounts for an estimated 4.5% of total US electricity consumption. In the context of growth out to 2030, the range of forecasts is wide, but the apparent consensus is probably for a doubling in share to around ~9% by 2030. It is difficult to be precise when predicting the future.

Growth of this magnitude is extraordinary and implies c.2% CAGR electricity demand growth for a country that has essentially comped flat since around 2007.

But, given the scaling environment, we think this estimate looks low.

Consider that Nvidia in its most recent transcript called out two of its biggest projects for the quarter, being Meta's 24,000 GPU cluster for Llama 3 and Tesla's 35,000 GPU cluster for self-driving.

In the same breath, Nvidia's CEO Jensen Huang discussed their largest oncoming customers are reaching 100,000 GPU clusters... Right now, according to Meta CEO Mark Zuckerberg, AI data centers are somewhere around 50MW – 100MW in size which translates roughly to 60,000 H100 GPUs.

Given we are seeing *single customers* install the equivalent of over an entire data center, Zuckerberg's next comment, which on first hearing sounds insane, may not be unlikely: *"…you get into building a data center that's …1GW, but I don't think it will happen next year…"*.

A 600,000 GPU data center does not seem impossible considering what individual customers are currently building and the current c.10x FLOPs increase per LLM generation occurring every 9 months. If the current data center park in the US flipped to 1GW over the course of 3 years (run-rate scaling implied), that's equivalent to 12% CAGR demand growth.

**Training and inference costs:** While the energy cost of training is increasing, it's not a significant portion of the total energy cost of running an individual LLM. Inference has changed significantly over the years and it is now quite computationally expensive. Originally, inferencing might look like you sending over a few images or numbers and the model classifying that information into one of a handful of classes.

Today, you're sending over a few lines of text and the model is generating thousands of words at a time. A typical google search uses only 0.3Wh[4], whereas a query to ChatGPT, depending on its complexity, can use 10 to 100 times that amount, i.e. 3Wh to 30Wh. In the context of electricity demand, that's a wall of demand that has barely begun to hit.

**What are the big boys doing**: The other way to come at this is to just look at what the US hyper-scalers are doing.

Amazon, Apple, Google and Meta have all committed to 100% renewable energy.

These 4 companies alone are 40% of total US utility scale solar installations. Amazon is alone almost 20%.

But considering Nvidia's sales growth leads data center build out and electricity consumption growth, US hyper-scaler utility scale solar installations are going way up in the years ahead.

First Solar remains the only US based vertically integrated solar photovoltaic manufacturer and the largest thin film photovoltaic manufacturer globally. Fully booked through 2026 and taking orders out to 2030, providing a high degree of underlying earnings certainty for years to come.

For the intensely curious, a link to some of our work on First Solar can be found here: Geometrica First Solar Thesis.

**Ambu** (AMBUB.DC, mkt cap €4.7bn) rose +16.7% in May.

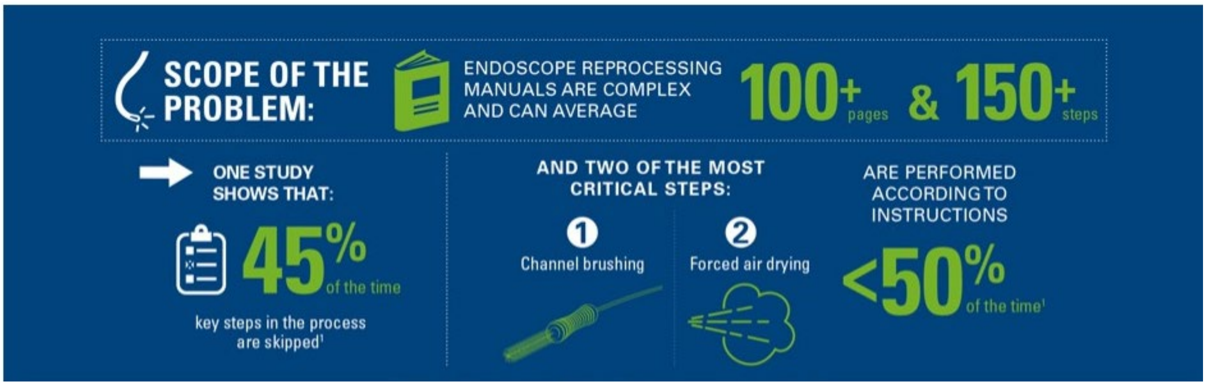
Ambu is the largest maker of single use endoscopes. The endoscope market is dominated by reusable endoscopes.

Today, just like 100 years ago for needles and scalpels, endoscopes get cleaned and reused, again and again.

Reusable endoscopes can be cheaper for a hospital on a per use basis in the long run in a high-volume setting, but this may ignore the externality of infection.

Reusable endoscopes have a materially higher infection risk than single use devices, something highlighted by the US FDA on multiple occasions.

[4] Watt hours. Your electricity bill probably quotes consumption in KWh or kilowatt hours.




Source: Boston Scientific

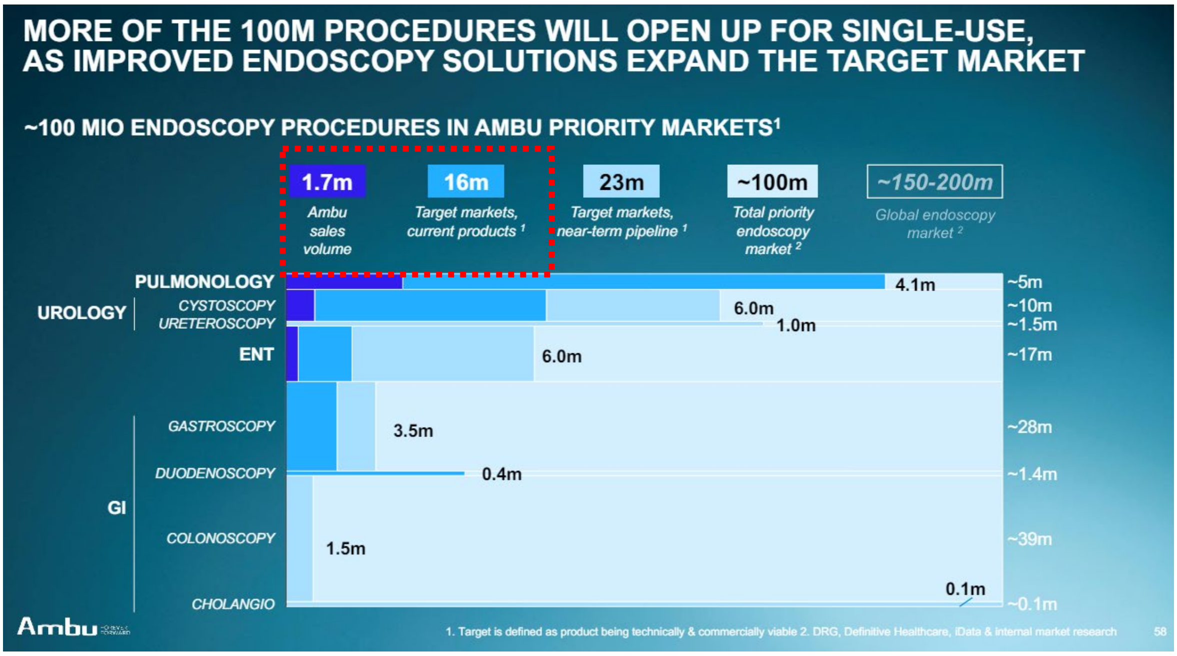
Historically, single use endoscopes have lagged reusables in their technological features, but this is changing with the relentless march of innovation.

During the month via our interaction with Ambu we gained more insight into two new products. One of these targets the massive GI segment (see image below). Should the product be a success (we understand it was developed in conjunction with specialists seeking its unique features for an unmet need) the implication for earnings would clearly be positive.

Whether deliberate or accidental, Ambu's launch of new products targeting niche procedures should slowly fragment the endoscopy market. This over time mathematically disrupts the economics of both reusable endoscopy manufacture and usage.

For a given procedure volume – which can tie directly to a specific endoscope design - Ambu's production volumes are around 100x larger than, say Olympus, by virtue of Ambu's product being disposable versus reusable. The learning effects in any manufacturing or engineering process from sheer volume are powerful.

Ambu's current market share of all endoscopes is small. Yet its revenue growth rate is running ~3x faster than endoscope market growth. Ambu is inexorably gaining market share, one procedure and product at a time and the prize is very large.




Source: Company, 2023 capital markets day. Emphasis on Ambu sales volume vs target markets added.

**DOF Group** (DOFG.NO, mkt cap €1.5bn) rose +17.6% in May, the fourth month in a row of 10%+ gains.

We covered our views on DOF Group in last month's letter in some more detail.

Prices in the sector continue to rise, on account of a fundamental supply and demand mismatch, which looks set to continue for some years yet.

The big picture math is 30% less vessel supply alongside more demand than the prior peak market, based on our review of the order books of the largest subsea services firms.

We think price is the rationing mechanism and should go way above prior peaks.

The rising rates in the sector are not yet leveraging hard into DOF's revenue and earnings because the fleet was put on multiyear contracts just a few years ago, almost at the bottom of the market, when it was creditor controlled.

That will change across the next two years as the fleet recontracts onto materially higher rates.

*Some* of this is in consensus forecasts and even on consensus numbers DOF will have a free cashflow yield north of 25% in a year or so.

Our numbers based on a vessel-by-vessel review are materially higher. The vessels in DOF's fleet are generally young, very high specification and in very high demand.

**Nvidia** (NVDA.US, mkt cap US$2.7 trillion) rose +26.9% in May. Sifting the tea leaves of Nvidia's quarterly results and the economics enjoyed by their customers augurs for further growth ahead.

Things that grow as fast and as big as Nvidia are exceedingly rare. Hardly an insight, but worth stating to highlight the potentially singular nature of where this might ultimately lead.

The incremental returns for Nvidia's largest data center customers from buying more GPUs from Nvidia are extremely attractive. We can directly observe this.

As discussed, the easiest constraint to solve for currently in digital intelligence is compute capacity. The world is complex. As more data is added and greater levels of representation are possible (larger models), results improve. So, more compute capacity is needed, and we are operating in an environment where the highest payback is from scaling.

Nothing grows this fast forever and indeed, history shows that these scaling paradigms aren't infinite, but they can go on for some time and are occurring closer together.

**AppLovin** (APP.US, mtk cap US$27bn) AppLovin is a stock we invested in a few months prior, it rose +15.5% in May.

AppLovin earns most of its income from supply and demand side advertising platforms that allow mobile game publishers to earn money from placing ads within their games and advertisers to target mobile game users. AppLovin also operated historically as a mobile game developer, albeit this segment represents a small and declining proportion of revenue and earnings.

AppLovin are rapidly taking market share from the segment incumbent, Unity Software, driven by AppLovin's superior user targeting engine. Better targeting drives better return on ad spend (ROAS) which attracts more advertisers and publishers to the platform.

AppLovin IPO'd in mid-2021 and after an initially strong showing, was beaten down throughout 2022 and early 2023 and only now has returned to its IPO price. This was caused predominantly by two factors: 1) COVID drove a pull forward in gaming demand which begun to unwind in 2022 and 2) Apple's privacy changes in May 2021 damaged user targeting models causing ROAS to drop and money to flow out of the mobile gaming advertising market.

A mixture of AppLovin's owned mobile gaming data, visibility into both demand (App Discovery product) and supply side (MAX product) data and a unique ability to continue to target users on iOS allowed them to continue growing through this downturn. Today, despite a share price that is back to IPO levels, AppLovin trades on a third of its initial multiple and at a steep discount to listed ad-tech peers and prior transaction multiples.

The mobile gaming market has returned to growth in 2024 which, alongside non-gaming vertical expansion opportunities, we think should push earnings and catalyse the market to revisit AppLovin's valuation.

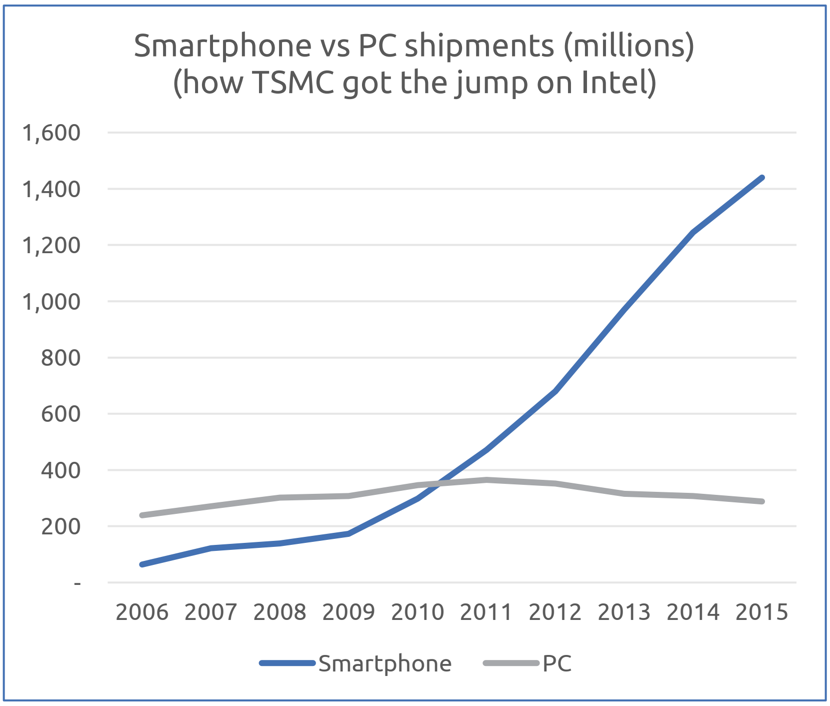
**Paladin** (PDN.AU, mkt cap A$4.7bn) rose +14.0% in May. Paladin continues to progress production at the Langer Heinrich mine and the longer dated development of the Michelin project.

Michelin, we think, remains as a material upside driver for Paladin.

However, far more germane to the upside for Paladin and the entire sector, is the price outlook for uranium, which is likely to be driven by Kazatomprom's production performance in '24 and '25.

We think disappointment looms on the uranium supply front, as a pattern is emerging of declining production yields from Kazatomprom's legacy projects alongside bottlenecks on starting new ones. Kazatomprom are the largest and lowest cost producer in the industry; any supply reduction from them is highly positive for the pricing environment.

**Taiwan Semiconductor** (TSMC.US, mkt cap US$830bn) rose +10.0% in May. TSMC is the main foundry used by Nvidia for production and packaging of GPUs.




Source: Industry reports

GPU's have been one of the few bright spots in a semiconductor industry that has otherwise been languishing after the covid demand surge and resultant hangover effect.

TSMC are the most advanced semiconductor foundry on earth. Intel once held that mantle but fumbled by declining to manufacture for Apple, many years ago at the very start of the iPhone era. Smart phone volumes have long since surpassed PC volumes, leaving Intel in the wake of TSMC and TSMC's most important customer, Apple.

**Uber** (UBER.US, mkt cap US$134.9bn) fell -2.6% in the month after falling -13.9% the month prior.

A share price can be either opportunity or valid judgement, but not both simultaneously. We think in this case opportunity knocks and have added to our position. After all, if you like something and it gets cheaper, the logical thing to do is buy more.

**Resmed** (RMD.AU, mkt cap A$45.6bn) fell -4.4% in May after strong runs in the prior two months. Despite a solid share price bounce in recent months, the stock continues to trade cheap relative to its history. Valuation remains compressed due to fears of GLP-1 drug usage curing some users of CPAP of their OSA. We think the influx of new users of CPAP from OSA diagnosis associated with obesity treatment (including use of GLP-1s) will swamp exits from current CPAP users for years to come. This appears to comport with data released by Resmed. If we are correct, it will bear out in earnings.

The Fund is open to new investment with relevant information available at **GeometricaFund.com**

## PERFORMANCE (%, NET)[5]

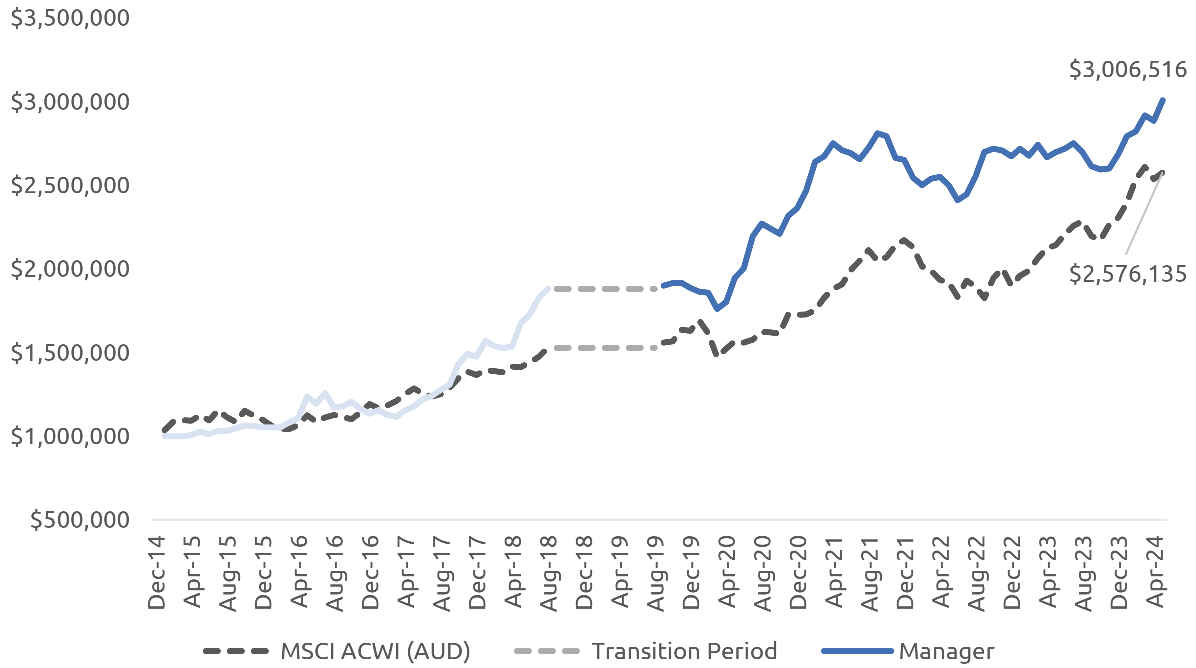
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Fund |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2015** | +0.1 | -0.3 | +0.0 | +0.7 | +2.1 | -1.4 | +2.0 | -0.2 | +1.5 | +1.7 | -0.2 | -0.9 | +5.1 |
| **2016** | +0.0 | +0.0 | +2.9 | +2.3 | +11.8 | -3.6 | +5.3 | -6.8 | +0.6 | +2.3 | -3.5 | -2.5 | +7.7 |
| **2017** | +1.9 | -2.6 | -1.0 | +3.5 | +2.2 | +3.5 | +1.7 | +3.0 | +2.4 | +9.5 | +4.1 | -1.1 | +30.3 |
| **2018** | +6.5 | -2.1 | -0.7 | +0.6 | +9.1 | +3.2 | +5.6 | +2.9 | -- | -- | -- | -- | +27.4 |
| **2019** | -- | -- | -- | -- | -- | -- | -- | -- | +1.1 | +0.8 | +0.1 | -1.6 | +0.5 |
| **2020** | -1.3 | -0.3 | -5.2 | +2.4 | +7.9 | +3.0 | +9.5 | +3.5 | -1.4 | -1.4 | +4.8 | +2.0 | +25.2 |
| **2021** | +4.5 | +6.9 | +1.2 | +3.0 | -1.5 | -0.7 | -1.4 | +2.6 | +3.1 | -0.6 | -4.6 | -0.4 | +12.2 |
| **2022** | -4.1 | -1.7 | +1.5 | +0.5 | -2.0 | -3.5 | +1.4 | +4.4 | +5.8 | +0.7 | -0.4 | -1.3 | +0.8 |
| **2023** | +1.7 | -1.5 | +2.4 | -2.7 | +1.2 | +0.8 | +1.2 | -2.0 | -3.1 | -0.8 | +0.2 | +3.3 | +0.5 |
| **2024** | +4.0 | +1.0 | +3.4 | -1.1 | +4.3 | | | | | | | | +12.0 |

*2015 – 2018: CVF (same portfolio managers and strategy)*

*2019 onwards: Geometrica.*

| | |
|---|---|
| Manager ITD | +200.7 |
| Manager p.a. | +14.0 |
| Geometrica p.a. | +10.4 |

## PERFORMANCE CHART (%, NET)[4]

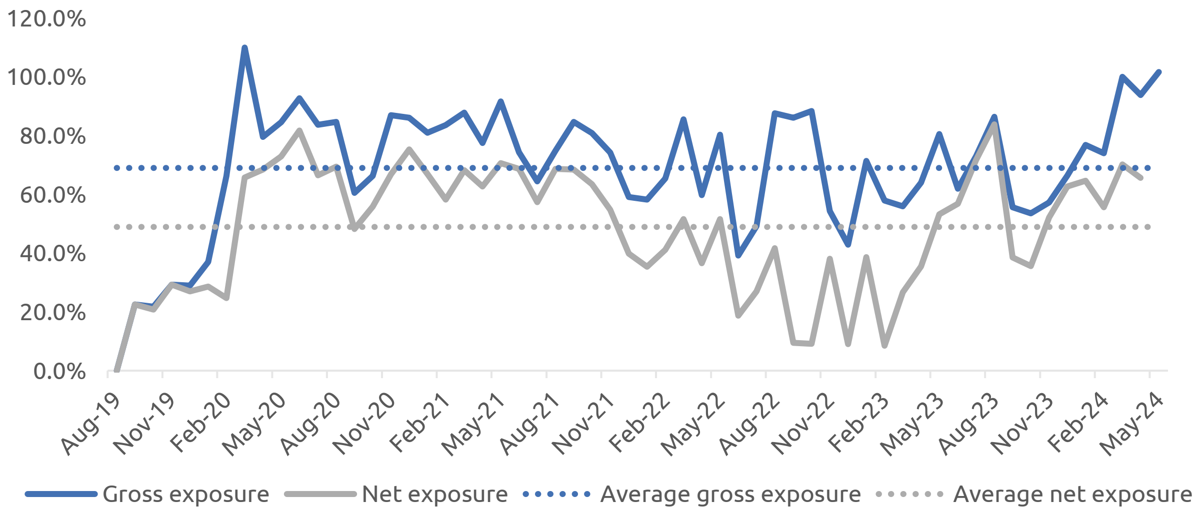



[5] Performance is after all fees, Founder Lead Series unit.
[4] 2015-2018: CVF (same portfolio managers and strategy); 2019 onward: Geometrica. Index = MSCI All Country World Index (AUD)

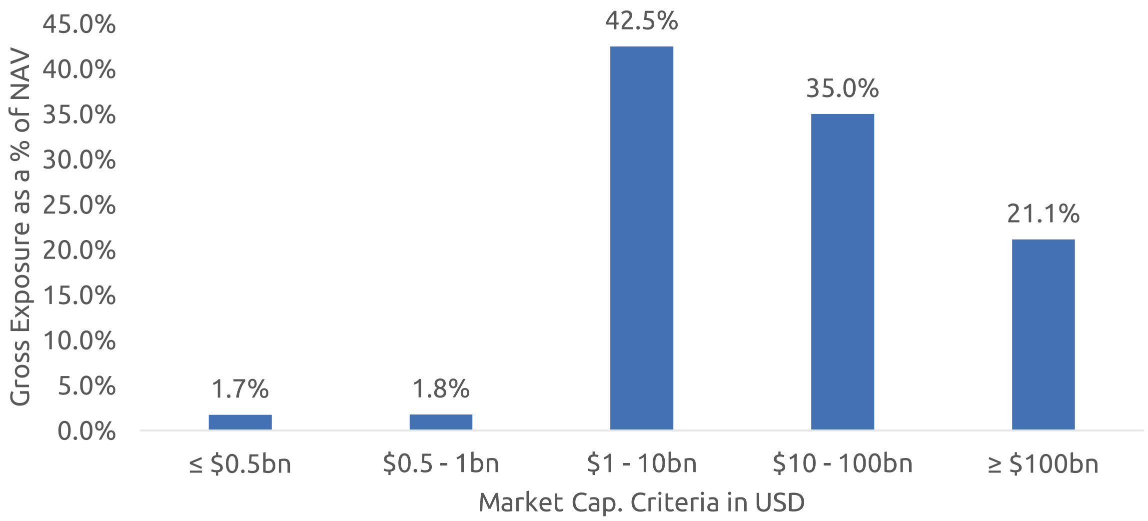
## ASSET ALLOCATION

| Country | Long | Short | Gross | Net |
|---|---|---|---|---|
| Australia | 13.7% | (1.9)% | 15.7% | 11.8% |
| Americas | 45.1% | (6.6)% | 51.6% | 38.7% |
| Asia | 5.3% | (3.5)% | 8.8% | 1.8% |
| Europe | 25.0% | (0.6)% | 25.7% | 24.4% |
| Total | 89.2% | (12.5)% | 101.7% | 76.6% |

## GROSS & NET EXPOSURE




## GROSS EXPOSURE BY MARKET CAPITALISATION



## FUND OVERVIEW

| | |
|---|---|
| **Fund** | Geometrica Fund |
| **Structure** | Wholesale unit trust |
| **Mandate** | Global long short<br>Mid-cap focus |
| **Gross exposure range** | 0 - 200% |
| **Net exposure range** | up to 100% |
| **Single stock long limit** | 15% at cost |
| **Single stock short limit** | 5% at cost |
| **Buy / Sell Spread** | Nil / 0.25% |
| **Investor Eligibility** | Wholesale only |
| **Platforms** | Ausmaq, Hub24, Powerwrap, Netwealth |
| **Fees (Founders Class)** | 1% management (+GST)<br>15% performance (+GST) |
| **Benchmark** | RBA Cash Rate |
| **High water mark** | Yes |
| **Liquidity** | Monthly |
| **Administration & custody** | Apex |
| **More information** | www.GeometricaFund.com |