

GLOBAL MOBILITY FUND

Quarterly Report

December 2023



TAMIM

WHY MOBILITY?

WHY NOW?

- **\$8-10 Trillion Revolution:** That's right, trillion with a "T." We believe this is going to be the biggest technological revolution of our lifetime ... and very few are paying attention.
- **It's Happening Now:** EV adoption is inflecting, and autonomous vehicles are already on the road today across the nation. Waymo has over 700 autonomous vehicles in its fleet, with over 40 million real world miles, and recently quadrupled its city coverage (PHX, SF, LA, AUS). In the Phoenix area, consumers can hail a fully autonomous Waymo One today with a simple click in the app.
- **Every Industry Will Be Affected:** We believe there will be massive winners and significant losers - given our structure, we plan to make money on both. On the winning side, think about: semiconductors (digital and electric vehicle content), cloud software & infrastructure, and autonomous technologies. On the loser side, think about the industries that may disappear: car rental companies, internal combustion engine (ICE) components, and legacy OEMs...
- **Multiple Ways to Win:** While the end state is already coming into view, there are multiple building block evolutions that we are actively seeking to capitalise on - namely, Sharing/Connectivity, Electrification, and Autonomy.



1. KEY OBSERVATIONS OVER DECEMBER 2023 QUARTER?

During the quarter, the market-cap weighted indices sold off sharply in October followed by a broader rally in November and December – driven primarily by expectations that Central Banks had reached the end of the rate hiking cycle. The US 10-year yield collapsed from a peak of ~5% to 3.8% in under 3 months, due to a combination of reduced supply (Treasury funding in bills over coupons, announced early November) and expectations for rate cuts in 2024. Once again, the reciprocal of the prior quarter, sentiment in the market shifted from pessimistic to euphoric in a very short time span, which we can see in both sentiment/positioning gauges and multiple contraction. Specifically, the [NAAIM exposure survey](#) moved from 25 in October to 102 to close December. Moves in equity multiples continue to primarily drive movements for the year – with a fairly significant expansion in Q4 driven partially by the rapid decrease in rates – while earnings estimates continue to tick lower.

Tying this to the bear market phase framework, 2023 was generally phase 3 (growth slowdown), which is focused on negative earnings revisions (i.e. the Earnings in the Price/Earnings ratio) as growth decelerated and fluctuated with very loose fiscal against relatively tight monetary policy. The Fed pause since July 2023 has continued, as they rely on the lagged effects of tightening to induce an economic slowdown to control inflation and to preserve the credibility of the US Dollar and Treasury system. While recessionary concerns abated during Q4, we do not believe some of the underlying issues have gone away – notably China's economic weakness and issues within the US commercial real estate industry. We continue to monitor the labour market and Fed reaction function as it pertains to the economic cycle. While inflation remains a modest concern in absolute terms (above target at ~3%, as measured by the CPI), it has decelerated meaningfully from its peak due to a combination of base effects, tightening monetary policy, and releases from the Strategic Petroleum Reserve (keeping oil prices in check). Overall, fiscal policy remains loose (US is running an almost \$2 trillion annualised deficit; something only typically seen during recessions) while monetary policy remains tight. The shift to fund more of the US fiscal deficit at the short end (announced early November) was a short-term positive for risk (bill supply absorbed by RRP) in Q4 and into early 2024. Funding in 2Q24 will shift back toward coupons, which likely act as a risk headwind. We expect the tug-of-war likely continues into 2024 (election year) and sets up very attractive opportunities on the other side, particularly for those direct fiscal beneficiaries.

Looking ahead, our expectation is that inflation remains relatively sticky (~3%+) over the coming ~3-6 months driven by energy prices (rising geopolitical risk), food prices and sticky wage increases (driven partially by demographics and exemplified by labour union strikes in the US). This stickiness will likely keep monetary policy tight – leaving the Fed unlikely to cut until ~2H24 (market now has priced in ~100bps of cuts in 2024). In the short run a soft-landing, goldilocks scenario is being priced in. We expect bumps in this soft-landing narrative to offer opportunities in the 1H24. And we believe the heavily concentrated market (partially due to the AI cycle) is masking underlying weakness – many of these cyclical areas that have been decimated are beginning to look very attractive. Whereas we expect the first leg of this AI innovation cycle is now in bubble territory and on the precipice of peaking and then bursting in late Q1 and into Q2 of 2024.

2. WHAT WERE THE KEY CONTRIBUTORS / DETRACTORS OVER THE QUARTER?

Overall, the Global Mobility unit class was up 1.9% net in Q4 2023 with the last 2 months up by 10.45%. The S&P Smart Kensho Index focused on the mobility universe was up 2.56% over the same timeframe. Key positive contributors during the quarter were long exposures that benefitted from the first phase of the AI cycle (e.g. AMD, TSM, ALTR) and the reflationary rebound in the latter half of Q4 (e.g. LTHM, STM). AMD – a leading semiconductor supplier of GPUs and CPUs, and an NVDA competitor – was initially hit by a combination of higher interest rates and increased announced semiconductor restrictions (by the US, on China). AMD rebounded in 2H of the quarter with the launch of their new GPUs which help facilitate the build out of AI infrastructure powering the burgeoning growth of generative AI. LTHM (now ALTM post merger) is a smid-cap lithium producer that was initially negatively impacted by the UAW strikes and production shutdowns in early Q4, but rebounded to close the quarter. A Key detractor during the quarter was ACVA which had small losses during the period. During the quarter, we did not have any short exposure. While we continue to have high and rising conviction in our negative view on legacy auto OEMs, notably Ford, we had covered those positions and did not see attractive entry in Q4; however, that is changing into Q1 2024. Players like Ford are already losing significant sums of money on EVs (high cost structure; not selling), and rising labor costs (i.e., UAW re-negotiated contracts) just exacerbate those cost structure problems. We believe this current phase of the market - growth slowdown - will continue to favour quality growth names and disproportionately negatively impact labour/energy sensitive names, as well as those that are interest rate sensitive and require capital access.

3. WERE THERE ANY OTHER NOTABLE CHANGES TO THE PORTFOLIO OVER THE LAST 3 MONTHS?

After the rally in late Q4 and into early 2024, we reduced some long exposure – particularly to those companies that have benefitted early from the AI innovation cycle. As noted, we are beginning to see significant opportunities in the EV supply chain, notably the cyclical areas (e.g. analog semiconductors, lithium producers, copper producers). We expect to ramp up exposure to these areas through the 1H of 2024. As we transition through phase 3 of the bear market, the primary change in the portfolio complexion has been and will be to add to quality growth (generally tech-focused and energy/transportation revolution enablers) longs, and to scale up secularly declining, labor/energy sensitive, and interest rate sensitive (require capital market access) short positions. Overall, we are now cautious to neutral on the overall market - but increasingly excited about both our long and short universes. Many of the names in our long universe are down ~50-75%+ from their peak, providing very attractive entry points into the next decade's winners. While the short universe, primarily composed of legacy businesses set to go away, likely declines at an accelerated rate in this next downturn.

During this phase, we also tend to see large dislocations in small cap as well as cyclical businesses (e.g. battery materials and commodities) - as investors crowd into larger cap, liquid names. This time appears no different, and we are clearly seeing more unique opportunities as we move down cap and look at cyclical / materials names pricing in a recession (as noted above). And we are seeing significant 'crowding' as it pertains to liquid, large capitalization stocks within the US. Opportunities over the next 12 months will be focused outside of the concentrated large cap arena.

4. WERE THERE ANY MEANINGFUL CHANGES IN VALUATIONS ACROSS THE PORTFOLIO?

As noted above, the long side of the mobility universe has been decimated over the last couple of years. As a proxy for the long side of the universe, ARKK – an ETF focused on investing in next-gen innovation technology and mobility - is down ~ 70% since February 2021. Majority of this value destruction has been concentrated in multiple compression - very typical of phase 2 (duration sell-off), as interest rates rise parabolically. And, outside of a few product-cycle driven names (e.g. Nvidia with AI) there has yet to be a broad cyclical recovery in the economy (US manufacturing PMI has gone from 64 to 46, now 50, since March 2021) and fundamentals. On the flip side, many names within the short universe - generally shorter duration value names, less sensitive to interest rate rises - initially held up relatively well, but have started to deteriorate at an accelerated rate as tightening begins to bite. As we continue to progress through phase 3 (growth slowdown), we have seen the dynamic flip - with secular growth names (many of which have already taken “pain”) outperforming economically sensitive names (such as auto OEMs) that are seeing significant negative earnings revisions. Cyclical names in our winners

universe – notably in the EV chain, such as lithium and copper producers – have also been caught up in the cyclical slowdown sell-off. And these names are beginning to present very attractive cyclical entry points into secularly growing areas (i.e., EV penetration going up, but auto is still cyclical).

Over the next several years, we believe stock-picking will be a lot more important than it was over the previous decade. As we noted above, we believe this period closely mirrors the Dotcom boom and bust (~1999-2002).

While everything Tech/Internet sold off in unison at first (e.g. Amazon was down over 95%), the key coming out was being able to discern the real companies (winners) from the frauds (losers). Winners like Amazon proceeded to go up

~600x over the following two decades and the Dotcom bust provided a rare buying opportunity. While losers like Pets. com went to zero. We expect to see the same thing today

- expected winners like Tesla are likely to bottom between now and the next 12 months or so, while expected losers like Electric Last Mile Solutions have already started to file for bankruptcy. Overall, expected winners have attractive risk/reward profiles - 5-10x higher, versus 30-40% lower - and although the coming quarters are likely to be bumpy, we are incredibly excited about the opportunity set ahead.



5. HOW HAS THE PORTFOLIO NAVIGATED RECESSIONARY RISK, HIGHER INFLATION, THE ABILITY TO PASS THROUGH COSTS, AND OTHER MATERIAL CONSTRAINTS (HIRING, ENERGY COST, SUPPLY CHAINS)?

While the last year+ has been relatively choppy – navigating tight monetary policy, a cyclical slowdown, rising geopolitical risk, mixed in with an AI product cycle – we remain highly confident in both our macro and micro views and processes, and believe the portfolio is and will be well-positioned to weather this storm and capitalise on the rare opportunity set coming out of it.

We believe we are traversing phase 3 of the bear market (growth slowdown; partially masked by an AI cycle) and have and will continue to position the portfolio accordingly. In general, we look to invest in resilient and adaptable business models on the long side and are cognisant of how these stocks tend to perform in a downturn (look for pricing power, positive free cash flow, and key secular revolution/capex enablers, etc.). And we look to short the opposite - secularly declining companies not investing for the future, and with no pricing power or competitive advantage. We believe many of these secular losers (generally economically sensitive names) are beginning to lead the next leg lower as the growth tide begins to recede.

Overall, we're excited about the opportunities that this environment has and will present as:

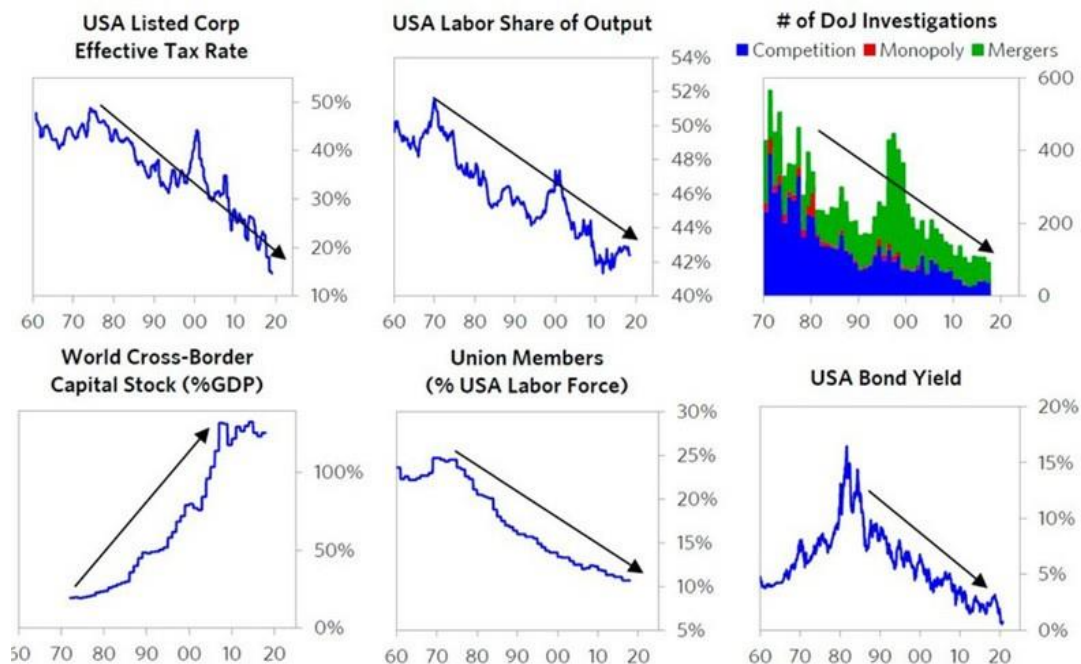
- The trends that we're focused on we believe are all accelerating out of necessity
- Our conviction has dramatically increased
- The universe is now ~70% cheaper (using ARKK since February 2021 as a proxy)
- The risk-reward is skewed highly positive



6. MACRO AND MOBILITY RECAP – HOW WE GOT HERE

Over approximately the past 3.5 years, we have seen a compressed economic cycle - partially driven by an unprecedented fiscal response (essentially MMT) to the Covid crisis, which rocked an already fragile (though efficient) world economy and financial market.

Taking a further step back, we have seen a very clear trend over the past 40 years: corporate tax rates down, labour share of output down (capital up), regulation down, globalisation up, unions down, and interest rates down.



Source: asiancenturystocks.com | <https://mobile.twitter.com/fritz844/status/1389061193365483520>

These dominant trends and the overall economy and stock market were primarily ‘governed’ by Central Bank (Monetary) policy around the world, most notably the Fed. Having hit the zero bound in an over levered system in 2020, monetary policy lost its relative potency (diminishing returns) - hence the need for a significant fiscal response. That fiscal response - which sent money directly into the real economy (on the demand side) - paired with the COVID (and now war) induced supply constraints have driven the significant inflation we are seeing today.

While we believe inflation on a rate-of-change (y/y) basis has locally peaked (after Ukraine/Russia lengthened that process), we do expect structurally higher baseline inflation (relative to the last decade) over the next several years. Despite the deflationary impacts of debt, demographics, and technology, the ‘newfound’ power of fiscal paired with the reversal of several trends above changes the inflation calculus.

We are now in an environment where things need to change. We believe we are in the midst of a 4th Turning and near the end of a long-term debt cycle. We are unfortunately in the midst of significant geopolitical tension – with US/China sanctions (e.g., Huawei bans, escalated semiconductor restrictions), and kinetic with Russia/Ukraine and Israel/Hamas. The major trends listed above are all now in the process of reversing, mostly out of necessity - for example, de-globalisation and reshoring as the US simply cannot be reliant upon China to make its military equipment and medical supplies.

The reversal of these trends and the rebuilding of a more resilient (albeit less efficient) system ultimately is likely to **result in a capex boom focused on Energy, AI, transportation/ Infrastructure, and Defense**. Our Global Mobility unit class is well positioned to capitalise on this expected global system shift and rebuild over the next decade.

7. MACRO VIEW AND MOBILITY RECAP – WHERE WE ARE GOING

As noted above, we believe the World order and system are in the process of changing. Most importantly, we are shifting from an extremely efficient (but fragile) highly interconnected global system to a less efficient (but more resilient) regionalised system – simplistically, de-globalisation. The prior highly globalised system was almost entirely reliant upon the USD (gold-backed until 1971, then oil-backed until recently); the new, regionalised system will be less reliant on the USD at the margin as trade will increasingly be priced in local currencies (already seeing this with China/Russia trading in rubles/ yuan). In this environment, commodities, gold (neutral reserve asset), and real ‘stuff’ become more important.

In addition to this being a monumentally important change for the broader financial system, the reason we lay all of this out is these macro shifts meaningfully accelerate our views on the transformation of the Mobility landscape – namely the energy and transportation sectors. Change is now no longer an option; it’s a necessity.

And, as we highlighted in prior updates, we are now seeing both real-world signposts that this transformation is happening (examples below), as well as a multi-trillion dollar fiscal spend pipeline that is set to accelerate the rollout in 2024 and beyond:

The CHIPS+ Act:

- Passed in August 2022. Focused on bringing the semiconductor supply chain, particularly manufacturing, back to the US.
- The roughly \$300 billion dollars has NOT even begun to be disbursed. Based on industry conversations, this should begin to flow in early 2024 and accelerate from there.
- This has already spurred hundreds of billions of planned upcoming spending in the sector – from TSMC’s expanded Arizona fab, to Samsung’s massive facility in Texas, to Global Foundries and Wolfspeed in New York. This will drive a semiconductor renaissance in the US.

The Inflation Reduction Act:

- Passed in August 2022. Focused primarily on the alternative energy ecosystem, manufacturing, and transportation infrastructure in the US. The over \$700 billion dollars in spending and incentives started in early 2023, but will accelerate in 2024 as rules and requirements were clarified at the end of March 2023.
- Similar to the CHIPS+ Act, this has already spurred hundreds of billions of dollars of planned capex announcements – from Tesla/Panasonic EV battery plant in Oklahoma, to Honda/LG Energy Solutions in Ohio, Ford in Tennessee/Kentucky, and Toyota in North Carolina. Just to name a few. This will drive battery materials and manufacturing to the US.

Infrastructure Investment and Jobs Act:

- Passed in November 2021. Focused primarily on transportation infrastructure, internet connectivity, and electric grid buildouts.
- The \$1.2 trillion in spend will begin to ramp in 2024 and beyond.
- We've seen a whole slew of industry spending announcements in response to this bill, from Verizon and others building out rural internet access to Chargepoint and Revel accelerating the buildout of the EV charging network. This will drive ubiquitous internet connectivity and EV infrastructure over the coming years.

The European Net Zero Industry Act:

- And finally, Europe's response to the Inflation Reduction Act has been proposed, with a focus on accelerating the transition to climate neutrality.
- In anticipation, we've already seen TSM start to evaluate building a fab in Germany. And many solar PV manufacturers start to accelerate capex plans.

Overall, these are just a few of the announced fiscal packages by Western governments, with likely more to come. And while all of these in the US have already been passed into law with the spending AUTHORISED, essentially NONE of the spending has actually even started. So effectively none of the trillions of dollars of funds, subsidies, or stimulus spend has even started! This spending should begin in earnest into 2024 and carry on for years, with an acceleration after elections.

And on the real-world signpost side, the number of examples continues to grow:

On the Electrification theme. The reshoring of semiconductor, rare earth mineral and battery material supply chains is now a national security [imperative](#) for the US. As we highlighted years ago, semiconductors are the new oil. Energy independence is critical, particularly in a fracturing global system teetering on East vs. West war. The reshoring-driven capex boom has just begun (e.g. [TSMC building fab in AZ](#)). And now we have fiscal stimulus – such as the CHIPS+ Act (to incentivise the reshoring of semiconductor manufacturing to the US) and the Inflation Reduction Act (a transportation and energy-focused bill, with incentives for things such as EV purchases and EV infrastructure buildouts) – that will further accelerate these real-world trends. We believe that we are in the first inning of a multi-year, multi-trillion dollar rebuild of critical supply chains – hence why we are so positive on all of the inputs and enablers (noted above) over the next several years.



On the Automation theme. The reshoring of supply chains is labour intensive and replacing very low-cost labour in China with much higher-cost labour in the West will be expensive, inflationary, and negative for corporate margins. The result: corporates are accelerating their automation plans (e.g. [Amazon robots](#) in fulfilment centers). Similar to the necessity of the new energy supply chain buildout, this automation acceleration is critical to the functioning of supply chains – for example, we already have a truck driver shortage in the US that will be further exacerbated by rising e-commerce penetration and negative demographics; as such, we believe autonomous trucking is part of the solution. Further, the current generative AI boom (e.g. ChatGPT, LLMs) will and is already starting to accelerate the launch of autonomous robots, including autonomous vehicles.

While the private sector has already begun this once- in-a-generation buildout, we are hopeful the upcoming deluge of fiscal spending will mirror the productivity of the Interstate Highway Act of the 1950s and the Pacific Railway Act of the 1860s. Rather than unproductive (limited/no multiplier) direct stimulus checks, we expect these packages (and likely future fiscal bills) focused on energy and transportation to be analogous to the highly productive Interstate Highway Act – which created jobs, connected cities, allowed for suburban sprawl, etc. A positive chain reaction with a virtuous cycle. The confluence of the above fiscal spend hits on our VENN diagram of focus areas: Connectivity, Electrification, and Automation. As they include things like connectivity / smart city infrastructure, electric vehicle subsidies, critical supply chain (semiconductors, battery materials, etc.) buildout incentives, among others.

This new system buildout is in it's infancy – we're in the first inning. It will takes years and trillions of dollars to build out, requiring a massive capex cycle. We are expecting a second Industrial Revolution in the US (and potentially the broader West) out of geopolitical necessity. And where you will want to be focused and invested is where governments will be directing these trillions of dollars. Our fund is one of few directly focused on these trends – from connectivity, to electrification to automation – and is incredibly well positioned to capitalise on the rollout over the coming years.

We expect the next decade is shaping up to look similar to the 1940/50s – with fiscal dominance, monetary impotence, inflation spikes, geopolitical tensions, and generally high volatility. This will require stock-picking (expect muted index level returns), patience, and vision. The heightened volatility will create significant opportunities (already beginning to see it today). And with our vision of how this decade is likely to play out, we believe we have an excellent roadmap and framework to capitalise on this rare opportunity. Effectively, we believe this is very similar to mid/late-2001 where Internet stocks had been decimated, yet the Internet revolution had just begun.

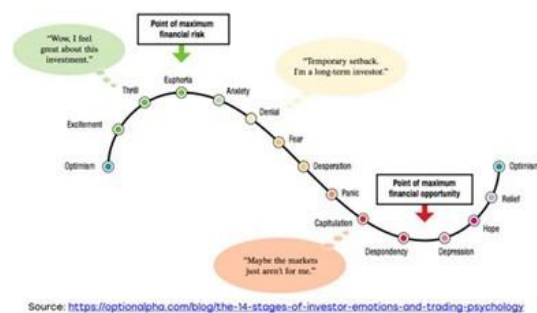
8. MACRO AND MOBILITY RECAP – A USEFUL ANALOGY

The Internet analogy and Gartner Hype Cycle provide a useful framework to analyse how technological innovations progress and how markets (humans) price them. Innovation continues and human nature does not change.

Gartner Hype Cycle



Source: Garner | https://en.wikipedia.org/wiki/Gartner_hype_cycle



Source: <https://optionalpha.com/blog/the-14-stages-of-investor-emotions-and-trading-psychology>

During the Dot Com craze, Amazon's stock was quite volatile, bouncing between ~\$50 and \$100 for over a year, before collapsing by over 90%. Investors did not discriminate – anything "Internet" related was thrown out.

The Market went from pricing in the "Peak of Inflated Expectations" (i.e. 'The Internet is going to be HUGE, BUY at any price!') to the "Trough of Disillusionment" (i.e. 'All Internet companies are scams, SELL at any price!') within about 18 months.

While the frauds (e.g. Pets.com, theGlobe.com) went to ZERO, the real companies (e.g. Amazon, Priceline) proceeded to explode higher over the coming years. For example, Amazon went from ~\$6/sh to \$3600/sh (600x). The non-discerning crash provided opportunities of a lifetime in 2001 for anyone who was prepared and saw the bigger picture. We believe we are beginning to see a similar setup today in parts of the market...



Since peaking in Feb 2021, the ARKK ETF – a proxy for growth/innovation stocks (though we certainly do not agree with all of the positions) – is down ~70%.

Maybe unsurprisingly, the price action of ARKK (2020-2022) has closely mirrored the price action of Internet stocks (1999-2001). Liquidity peaked (Y/Y) in around Feb 2021, and with it, a lot of stocks (notably growth) also peaked. Using the Dot Com bubble as a proxy, the majority of the damage has been done and we should see winners begin to bottom over the coming ~6-12 months – while losers will continue on their way to de-listing/bankruptcy. Our bottom-up work also supports this view and estimated timeline, and we expect a clear dichotomy between winners/losers.

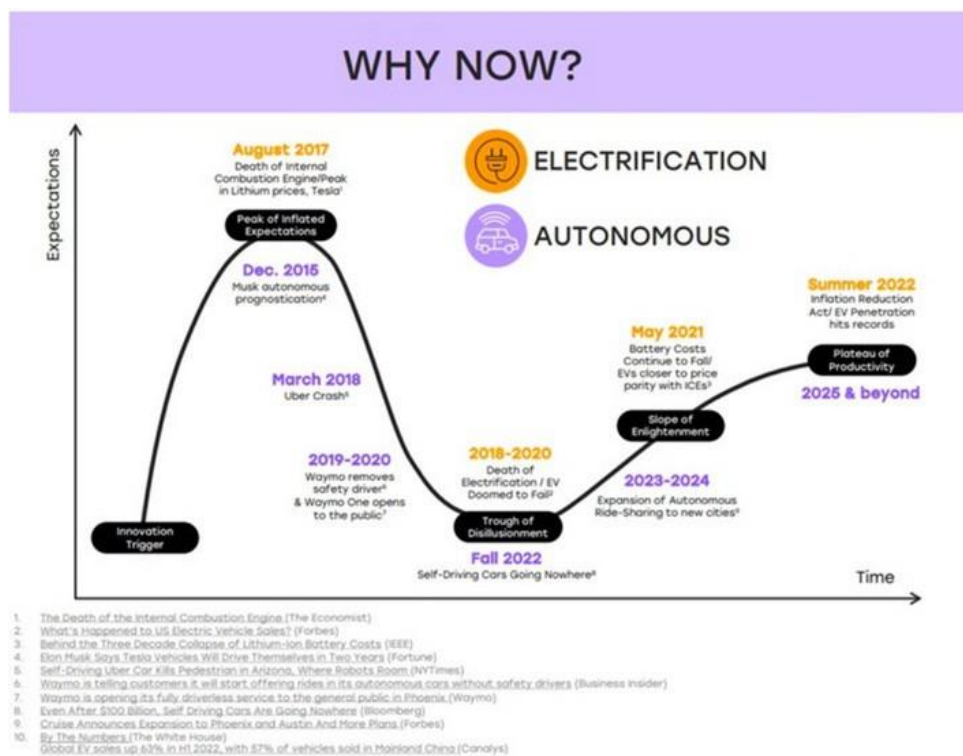


Overall, the parallels are clear. We expect a similar setup today. The Mobility Universe has dramatically expanded. Valuations and stocks have gotten crushed. Yet, similar to the Internet buildout of the early 2000s, the Mobility revolution is actually accelerating – partially out of necessity. Electrification is the new fossil fuel. Autonomy is the new railroad/interstate highway. We are more confident than ever in our three-pillar framework (Sharing/ Connectivity, Electrification, & Autonomy) and the broader Mobility Revolution.



9. A DEEPER DIVE INTO THE CURRENT INNOVATION CYCLE

In the chart below, we provide a more detailed look at where we believe the technologies we are most focused on – namely, Electrification (Energy) and Automation – are on the innovation adoption curve.

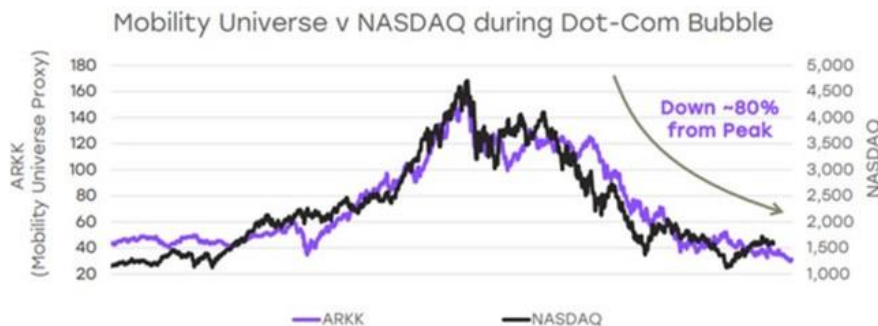


Quickly summarising the graph above:

- Electrification has come out of the trough of disillusionment phase (~2018- 2020) and is hitting the kink in the s-curve. Adoption is likely to go mainstream and explode higher in the coming years. Penetration-wise, we're at the ~5% level, similar to smartphones in 2007-2009 (analogy discussed below), and headed much higher. Tesla's recent price cuts combined with new subsidies will drive an exponential move.
- Automation is currently in the trough of disillusionment. It's been written off by the media, yet the tech adoption is actually accelerating – Waymo/Cruise expanding cities, Waymo vehicles now available on Uber, and Swiss Re highlighting how Waymo (fully autonomous vehicle) is safer than human drivers. This sets up for a very unique and asymmetric opportunity for those paying attention.

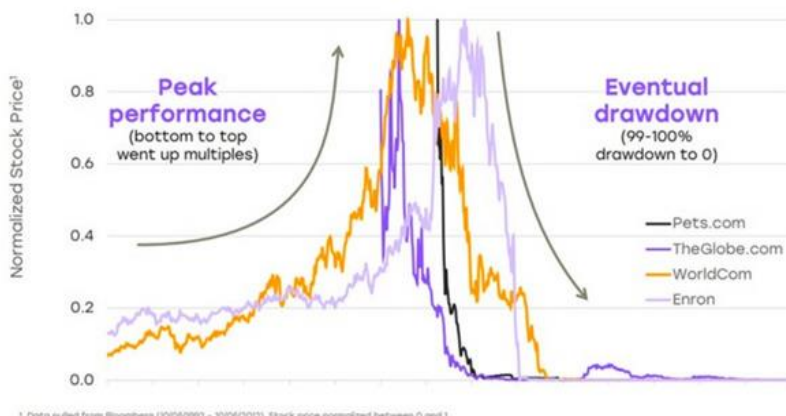
Looking quickly at two technological analogies to provide some context: First the Internet:

- The current stock market progression continues to closely mirror what we saw in 2000-2002, with the Internet bubble and subsequent bursting – with ~2002-2003 the trough of the disillusionment phase for the Internet.
- As you can see in the graph below, ARKK vs. the more speculative Nasdaq back then remains almost a perfect fit. And would suggest a bottoming for the “real” names in in 2023/2024.



We are running an Energy + Transportation fund ahead of what we believe will be the biggest Tech Revolution & upcoming Capex Cycle in a generation

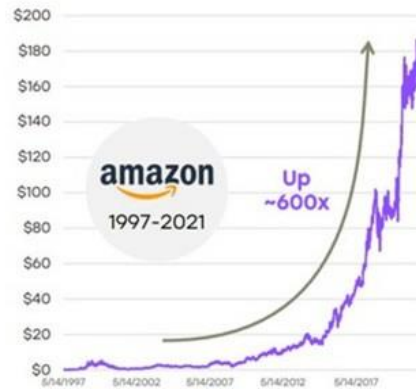
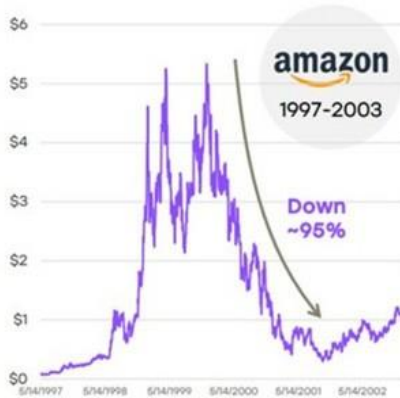
- From here, the fake businesses like Pets.com of the last cycle or Electric Last Mile Solutions of this cycle still go to zero.



But the real businesses, which have been caught up in the broader correlated sell off, start to bottom and present potential once-in-a-generation entry points.

Amazon is a good example of one of the Internet’s major winners.

- In 2002 everyone thought the Internet was dead (trough of disillusionment).
 - AMZN stock was down ~95% from the peak.
- But in reality, the Internet was just beginning to take off – similar to today, there was a huge disconnect between the real world vs. financial market.
- Over the ensuing decade+, the Internet turned into one of the greatest value-creating technologies out there.
 - AMZN stock went up 600x



- We see the Mobility Revolution as analogous – many are writing it off, stock prices and valuations have been decimated, yet the actual trends in the real world are accelerating.
 - We view our Global Mobility unit class today as similar to having an Internet Fund in ~2002.
- Overall, this is a great case study on focusing on the forest and big trends, not the trees and short term fluctuations.

And second, the Smartphone (and coinciding Mobile Internet) cycle:

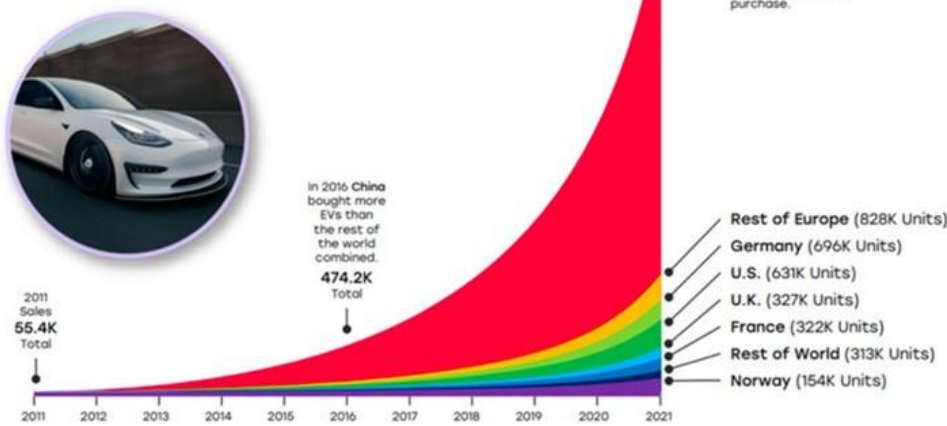
- Back in the early 2000s, it was difficult to identify the smartphone OEM winner – you had Apple, Samsung, Nokia, among many others all vying for the top spot.
 - This is similar to today’s relatively long list of Auto OEMs – from incumbents like Ford, GM, and Toyota, to challengers, like Tesla, Rivian, and Lucid.
- But back then it was a lot easier to identify that smartphone penetration would go from ~5% to 50%+ over the coming years
 - Number of Smartphones sold to end users worldwide from 2007 to 2021 (in million units)

- Today’s EV penetration % is similar to where smartphone penetration was back in the 2007 timeframe – low single digit %.

- We are at the kink in the s-curve where adoption starts to go exponential... and Tesla’s recent price cuts are a HUGE signpost. Similar to the “iPhone” moment in 2007



Alternative Energy infrastructure buildout is critical parallel system to build as we DEGLOBALIZE.



- The best risk/reward investments in the smartphone cycle were the “blue jeans to gold miners” businesses – notably areas like semiconductors (such as AVGO, QCOM, SWKS) – as they sold into essentially all smartphones and didn’t care who was making it. They benefitted from both rising volumes as well as rising content per phone. These stocks 10, 20, 30x’d over this tech cycle.
 - Vehicles are the next platform, the next smartphone. They are a smartphone on wheels, with rising content and complexity. There’s a reason all the Tech giants like Apple, Google, and Microsoft are focused here.
 - And adoption-wise, we see EVs as similar to smart phones in 2007 – penetration is hitting an inflection point, low single digit % today going a lot higher in coming years. And the best opportunities are in the components going in – semiconductors, rare earth minerals, battery materials. As they will benefit from rising EV volumes and rising content per EV.



- Looking at car parc, remember today there are around 1.4B vehicles in the world... and only 15- 20M are electric thus far. That’s worldwide penetration of only 1-2%... There is a long way to go.

The smartphone analogy is particularly useful in highlighting how we think about stock selection and actually investing in these massive trends.

So now we have both historical analogs to provide context for where we think we are, as well as an updated graph for our view of the progression of these technologies along the innovation cycle. Below are a few significant signposts that give us increased conviction in these views and the likely path ahead.





On the Energy / Electrification side:

- Tesla price cuts. We think this is a big deal and an aggressive offensive move by the leader in the EV space with the lowest cost structure. We expect this will do a few things:
 - The lower price point should increase affordability and accelerate demand for EVs. Reiterating our point on hitting the kink in the s-Curve on the adoption front (above). Demand should go up.
 - On the competitive landscape front, we expect this will accelerate the demise of poorly positioned legacy OEMs with inefficient cost structures, as well as undercapitalised marginal EV OEMs. We're already seeing a forced response from Ford cutting prices. And now they are in a box with rising labor costs (UAW strikes).
 - Given layers of vertical integration, Tesla is one of the only companies that actually have the margin to cut prices and the capacity to handle an influx on the demand side.

On the Automation side:

- Waymo quadrupled its city coverage. And Cruise highlighted the total time from start to actual rollout of a city has now compressed to 90 days... this compares to years to launch the first city.
 - The point being, we're about to see an acceleration in city rollouts in the coming years. It's a lot easier to copy/paste and go from 1 to 3 cities and 3 to 6, than it is from 0 to 1.
 - Further, Waymo is now [available on Uber](#), and Waymo's fully autonomous vehicles have been highlighted by Swiss Re as [significantly safer than human drivers](#).
 - This all comes at a time when the media has completely written off autonomous technology – a clear sign of the trough of disillusionment, which is one of the best times to look for asymmetric opportunities.

And this is just on the “sexier” side of the automation of moving people front. Doing things and moving things is happening at an accelerated rate as we've highlighted many times before. The use cases are widespread:

- Quick example. Kodiak Robotics – a company focused on self driving trucks – just got a \$50M contract from the US army to automate military vehicles.

Overall, despite the financial market turmoil, it's clear the real world trends we are most focused on are accelerating. And we believe this offers a unique opportunity – similar to the 2002 timeframe with the Internet bust – where there is a mismatch between the real world and financial markets. And tech cycle adoption wise, we believe we are hitting the kink in the Electrification s-Curve – similar to where smartphones were in the 2007-2009 period – while Automation is in the trough of disillusionment, yet continues to progress and is finding its product/market fit.

10. CURRENT BEAR MARKET – OUR EXPECTED PHASES

Below is a quick summary of our expected phases for this current bear market.

Phase 1: Liquidity Peak:

- Started Feb 2021
- ARKK is emblematic of this, down around 70% since then

Phase 2: Duration Selloff / Inflation Shock

- Started Nov 2021
- Sell off broadened to more general long duration assets as interest rates began to rise
- Longer dated US treasuries down over 35% since then

Phase 3: Growth Slowdown

- This is the phase we are currently in All economic indicators are decelerating, and earnings cuts have begun in earnest for many
- Sell off broadening to include cyclicals and commodity types – generally more economically sensitive names
- We expect rates will likely peak in this phase (currently in process; Fed pause)
- Oil could have a last push higher this spring/summer (2024) as tensions in the Middle East rise, and as the release from the Strategic Petroleum Reserve ends
- On a relative basis, many of the growth names — some down 50%+ peak to trough — bottomed and outperformed the cyclical names. Expect this to continue until a reversal in the economic cycle.

Phase 4: Contraction

- This phase is very path dependent - particularly reliant upon Fed actions as well as potential geo-political escalations
- We are at a precarious point right now - we've seen the Fed get to 5%+ and pause, as inflation has come down from 9% to 3% y/y. But now the Fed appears likely to at least hold, as inflation is likely to remain sticky as energy, food, and wages begin to pick backup
- Given we have not seen a real commodity supply response as of yet, if we do see issues with food/ energy prices spiking, the Fed may stay tighter for longer than typical (think early '80s with Volcker). While we have a slightly "offsetting" fiscal impulse (from all of the interest the US government pays into the economy - almost \$1 trillion annualised run rate and nearly a 9% deficit), this fiscal spend appears unsustainable. If fiscal is forced to tighten a bit (i.e. issue duration/coupon securities), coupled with monetary tightness, could lead to a deeper slowdown in 2024.
- In either scenario, we expect the US government to use fiscal spend to help buffer weakness, particularly for areas where the spend is focused
- We are nearing that Fed decision point now in the 1H of 2024

General Macro Views as of January 2024

- The regional bank crisis reminds us of the Bear Stearns events in March of 2008.
 - Everyone thought the issues were contained. The Fed coordinated a sale of Bear to JPMorgan. And the market moved higher through the summer, before beginning to face issues later in the fall.

Today it's similar

- This time, Silicon Valley Bank and Signature Bank failed. And JP Morgan acquired a failing First Republic. Since then, a few other regional banks have also failed.
- The Macro data points continue to deteriorate, but the Fed remains tight
- The market performance has been narrow and driven almost entirely by multiple expansion after the liquidity injection and AI hype
- And now almost everyone thinks we are going to avoid a recession. For context:
 - Soft landing being priced in, with ~100bps rate cuts expected by end of 2024
 - Equity sentiment has been tumultuous – from negative to meme stock positive
- And yet, the underlying issues (notably commercial real estate, as well as interest-rate sensitive areas like private equity) from this cycle remain unresolved

Looking ahead, we expect:

- **FIRST:** Inflation will stay sticky, leaving the Fed remaining tight. But a Fed pause rally is in process, as we laid out last update.
 - For now, inflation appears contained (~3%) and the Fed is likely to remain on pause. Combined with lower coupon duration issuance (shifted Treasury issuance to bills), that helped drive the rally over the last few months.
 - Oil prices have been suppressed by releases from the US Strategic Petroleum Reserve. These releases are unsustainable, and the US is starting to try to refill the SPR. Expect energy prices to begin to rise again in 2024.
 - The labour market remains tight. Labour union activity and strikes are heating up. Demographics are an issue. Expect wage increases to remain sticky.
 - Food prices are now rising again. The Russia/Ukraine War is ongoing. And now there is active conflict in the Middle East.
 - Overall, sticky inflation will start to negatively impact multiples. And likely keep the Fed relatively tight for too long (see Phase 4 risk, above).
- **SECOND:** Liquidity is likely to keep the market buoyed to start 2024, but we see issues coming back into Q2 unless the Central Bank monetises debt (e.g. QE) again.
 - Part of the reason this cycle is so unique, is the main issue is at the sovereign level - there is a bubble in western sovereign debt.
 - The US government is running a recession style deficit of over \$2 trillion dollars (6-9% of GDP) with unemployment on the lows.
 - They are currently financing it primarily with bills at the short end – they shifted to coupons in Q3 and saw a sell off; shifted back toward bills in Q4. With higher rates, government interest payments are now ~\$1 trillion per year, higher than the entire Defence budget.
 - And foreigners, notably China, are currently not buying US treasuries.
 - For now, per the November QRA, the Treasury shifted financing to the short end, which will be funded by the Reverse Repo Facility (keeping reserves stable/up).

- This funding mechanism will generally continue for Q1 of 2024 (per the January QRA), but shift in favor of coupons starting in 2Q24. Expect this will be when Treasury Buyback program begins
- **NEXT:** The current AI bubble will begin to deflate – already begun for the ‘fakers’
 - We are full believers in the power of generative AI, and expect these developments to accelerate things like autonomous driving.
 - But certain areas have gotten ahead of themselves. Expect likely a final local surge in early 2024 by the real players, followed by a pullback in those leaders
 - We are near the peak of inflated expectations. Many of these companies claiming to be beneficiaries are smoke/mirrors - similar to what we just saw with blockchain just a few years ago
 - Nvidia, OpenAI and a few semiconductor companies are the main current real beneficiaries. The rest are set to continue to deflate as they report reality and are exposed
 - Opportunities are beginning to pop up in the 2nd derivative areas as the AI ecosystems begin to take shape
- **FINALLY:** A credit event is likely to occur by the 2H of 2024
 - As mentioned before, the Fed response to the regional bank crisis was a bandaid. A temporary liquidity injection to help the duration mismatch issue.
 - As those loans come due and higher rates begin bite, we expect problems as all of the above issues culminate in a credit event likely related to regional banks and commercial real estate
 - This will lead to the Fed and fiscal response we have been waiting for to pivot max long
- Overall, our conviction remains incredibly high in the themes we are focused on, and the names we’ve selected to benefit from those themes.
 - The past year+ has been choppy.
 - But we believe the generational buying opportunity remains ahead of us.
 - And we plan to capitalise on the path ahead.



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