LIGHTHOUSE ADVISORS
Keeping Your Capital Safe

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Client Newsletter for the period ended 31 March 2018

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1. Foreword

Fellow Investors,

Welcome to the Lighthouse Advisors newsletter for March 2018.

This newsletter follows the same format as previous issues. The special topic for this issue is **Freemium Isn't Free**.

2. Market Commentary

After a good 2017, the first quarter of 2018 turned out to be volatile as early optimism in January gave way to fears in February and March of a damaging trade war between the US and its key trading partners.

Market Index	1Q18
S&P 500	-1.2%
UK FTSE 100	-8.2%
Nikkei 225	-5.8%
Shanghai Composite	-4.2%
Hang Seng Index	+0.6%

US President Donald Trump's plan to fix the US' trade deficit revolves around other nations reducing their exports to the US, whether voluntarily or through tariffs. Only South Korea has yielded, as it still depends on the US for military protection – despite Seoul's attempts to change this, during war the Republic of Korea Armed Forces come under the US-led Combined Forces Command[1].

But like a typical schoolyard bully who stops when victims fight back, Trump has done an about-face when met by opponents refusing to cower. After fierce protests, many US allies including Argentina, Canada, Australia, Mexico, Brazil and the European Union were temporarily exempted from the tariffs on aluminum and steel. Meanwhile, China, Trump's main target, counter-proposed tariffs on products imported from Republican-held states, knowing these would hit their leaders' reelection bids and their support for Trump.

The real damage has come from an unexpected quarter: the US Department of Commerce (DOC). In 2016 the DOC found that Chinese telecom giant ZTE violated US sanctions by selling its products (containing US-made parts) to all 5 major US-embargoed countries: Iran, Sudan, North Korea, Syria and Cuba. ZTE pleaded guilty in 2017. It agreed to pay a US$1.2bn fine and punish senior management. But ZTE didn't punish the executives, and it paid them full bonuses for 2016. DOC found out, ZTE admitted it lied, and DOC activated a suspended 7-year ban on ZTE dealing with any US-sourced commodity, software or technology[2].

The ban has done what Trump's tariffs could not: it has hit Chinese interests hard and brought them to the negotiating table. ZTE and Huawei lead China's telecommunications technology development, and losing access to current US technology would cripple its efforts to keep up, let alone pull ahead.

Yet, President Trump seems to have somehow switched sides and has tweeted that:

"President Xi of China, and I, are working together to give massive Chinese phone company, ZTE, a way to get back into

[1] *Here's The Big Change Seoul Wants To Make To The US-South Korean Military Command Relationship*, **Modern War Institute**, 6 November 2017.

[2] *Order Activating Suspended Denial Order Relating To Zhongxing Telecommunications Equipment Corporation and ZTE Kangxun Telecommunications Ltd.*, **United States Department of Commerce Bureau of Industry and Security**, 15 April 2018.

business, fast. Too many jobs in China lost. Commerce Department has been instructed to get it done!"

It will be interesting to see how the US President undermining his own Department of Commerce to benefit a foreign state-controlled corporation will "make America great again".

In any case, it seems the US-China trade war is now on hold[3]: a recent joint statement proclaims that China will "significantly increase purchases of United States goods and services."[4] That, of course, means exactly nothing at all. But it allows the Trump administration to claim a moral victory without holding Beijing to any quantifiable milestones. Which is exactly the way China likes it. In other words, China wins. Again.

There have also been developments in Korea: the Korean War may soon formally come to an end. Prior to the Winter Olympics in Pyeongchang, North Korea's Kim Jong Un put out some friendly overtures in his New Year's speech. The 2 Koreas then marched in the Olympics' opening ceremony under a combined flag, and competed in women's ice hockey as a unified team. It culminated in the 2 Korean leaders meeting at Panmunjom in the demilitarized zone and issuing a joint statement, wherein both sides agreed to cease all hostile acts and to work together to realize a nuclear-free Korean Peninsula[5].

To be clear, Korean unification and the resulting economic benefits are a long-term prospect. Germany is the obvious case study: 25 years after unification, average wages in the East were still only two-thirds those in the West, while household wealth in the East was only half that in the West[6]. Still, in the short and medium term, investors can expect the "Korea discount" to narrow, as the risk of Seoul's obliteration fades away.

Meanwhile, in Malaysia, former prime minister Mahathir Mohammed came out of retirement to lead the opposition coalition Pakatan Harapan to topple the incumbent Barisan Nasional party. Pakatan Harapan is an unlikely marriage of convenience amongst former adversaries: Mahathir himself jailed two of its leaders. But there is an ancient proverb that "the enemy of my enemy is my friend." And so old grudges were set aside for a common goal: to bring down Najib Razak's government. It is not clear if Mahathir can keep the coalition together long enough to actually govern Malaysia, but for now the priorities are the key campaign points: to resolve the 1MDB scandal[7], and to remove the unpopular Goods and Services Tax.

In China, it is business as usual. Domestic consumption and export-driven manufacturing are still growing. On the stock market side, the coming inclusion of many Chinese stocks in the MSCI indices means that passive investors will be buying up Chinese stocks for years to come. This should be a sustained tailwind for investors in the Chinese A-share market.

There is currently no clear trend in the markets, with stock prices often diverging from actual operating results. Many companies are now buying back their shares; investors usually do well to follow such insider behaviour. The next newsletter will cover the quarter ended 30 June 2018.

Benjamin Koh
Chief Investment Officer
Lighthouse Advisors
24 May 2018

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[3] *US and China halt imposing import tariffs*, **BBC News**, 20 May 2018.

[4] *Joint Statement of the United States and China Regarding Trade Consultations*, **Office of the Press Secretary of The White House**, 19 May 2018.

[5] *Panmunjom Declaration for Peace, Prosperity and Unification of the Korean Peninsula*, **Moon Jae-In and Kim Jong Un**, 27 April 2018.

[6] *Germany's reunification 25 years on*, **The Economist**, 2 October 2015.

[7] *Malaysian police raid ex-PM Najib Razak's house and other properties 'while looking for US$4.5b 1MDB corruption scandal documents'*, **South China Morning Post**, 17 May 2018.

3. Portfolio Review

As at 31 March 2018, the Net Asset Value (NAV) of the Fund was USD 109.03. Net of all fees, the return for the first quarter was -0.4%.

For reference, in the 3 months ended 31 March 2018, changes in the Fund's key markets were:

Market	Index	1Q18
Singapore	STI	+0.7%
Hong Kong	HSI	+0.6%
Shanghai	SSE	-4.2%
Fund	**n/a**	**-0.4%**

22 securities made up 89% of the Fund's holdings, with the balance in cash. A pie chart is in Annex I, while NAV values are tabled in Annex II.

Winners and Losers – Q1 2018

Winners	Change		Losers	Change
China Sunsine	+53%		Clear Media	-23%
Goodbaby	+25%		Genting HK	-21%
Frencken	+14%		Huayu Auto	-18%
Sarine	+12%		Fuyao Glass	-15%
Cityneon	+10%		BAIC Motor	-14%

China Sunsine jumped 53% after reporting full year results for 2017. Sales rose 34% but profits rose 54%. Dividends were increased by two-thirds.

Goodbaby climbed 25%. 2017 sales rose 15% while profits adjusted for one-offs jumped 33%. Dividends per share were maintained.

Frencken rose 14% on good 2017 results. Sales increased 10% while profits excluding exceptional items were up 45%. Dividends were increased by 99%.

Clear Media lost 23% after it reported its 2017 results. Sales rose 6% while net profit increased 1%. Dividends per share were maintained. However, the auditors issued a disclaimer of opinion, on the basis that there were unrecorded bank receipts and payments due to misappropriations by a cashier. The thefts occurred between 2007 and 2017, and police investigations are ongoing. The impact on the 2017 profit and loss statement was not material.

Genting HK fell 21% after reporting continued losses in its 2017 results. However the losses were reduced by about half. Dividends per share were maintained.

Huayu Auto dropped 18%, possibly over disappointing 2017 results. Sales rose 13% and profits increased 4%. Dividends were increased 5%.

Fuyao Glass declined 15% due to heavy foreign exchange losses in its 2017 results. Sales rose 13% but net profits were down 6% due to currency movements. Adjusted for forex changes, profits were up 18%. Dividends per share were maintained.

Other holdings were not material contributors to changes in the Fund's NAV in Q1.

New Investments

BAIC Motor is part of Beijing Automotive Industrial Corporation, a state-owned Top 5 automotive conglomerate in China. It has 2 joint ventures, Beijing Hyundai and Beijing Benz. It also produces vehicles under the wholly-owned "Beijing" brand and owns 8% of BAIC BJEV, an electric car maker.

Beijing Hyundai's sales suffered in 2017 from tensions over the Terminal High-Altitude Area Defense (THAAD) deployment, but Beijing has since stopped its anti-Korea activities and sales have begun to bounce back. Beijing Hyundai completed its 5th plant in 2017, so it will have ample capacity for future growth.

Beijing Benz is doing very well following the launch of several new models in the past 2 years. The positive momentum is expected to continue for a few more years. It has begun work on a second plant, for electric vehicles, to be completed in 2019.

The shares were purchased at about 10 times normalized (pre-THAAD) earnings.

Dawnrays is a drug manufacturer. Its original business was bulk production of active pharmaceutical ingredients (APIs), specifically in cephalosporin antibiotics. However, price competition has eroded margins and the group has shifted its focus to finished drugs. Besides finished cephalosporin drugs, key products include anti-hypertension, anti-allergy and Hepatitis B drugs.

The shares were purchased at 10 times trailing earnings and a 4% yield.

EVA Precision manufactures precision metal stamping and plastic injection moulded parts. Its key products are the metal chassis of multifunction devices and stamped automotive parts such as doors and hoods. Key customers include Japanese consumer electronics firms and Chinese and European car makers.

2017 results were depressed because they temporarily lost HKD 200m of sales to Samsung after Samsung Printing was bought by HP. However, HP has indicated they will give the business back to EVA and in larger volume than before.

2018 will also see contributions from EVA's plant in Vietnam, while the new plant in Mexico will start contributing in 2019.

The shares were purchased at 5.6 times EV/EBITDA and 0.8 times book value.

<u>Divestments</u>

Geo Energy Resources was sold after your manager concluded that the initial investment was a mistake: the margin of safety was too small. Essentially, there was too much riding on coal prices, and the short concession periods, expiring in 2022 in the case of the main producing mine, would not allow the company enough time to wait out a period of low coal prices. Including dividends, the loss on divestment was about 8%.

TVB was sold after it was announced that the proposed share buy-back was cancelled. Your manager decided to divest and reinvest the proceeds elsewhere. Loss on divestment was about 15%.

<u>Other Developments</u>

k1 Ventures was delisted and placed into voluntary liquidation. Liquidation is expected to be completed by August. There are unlikely to be any meaningful proceeds left for distribution to shareholders, so the delisting marks the exit of the Fund's investment.

The initial investment was made in 2012 for the managed accounts, when the management tried to privatize the company. Your manager estimated that the deal undervalued the company by at least 50%, and bought the shares. The buyout failed, and the underlying investments were eventually sold at values close to your manager's estimates.

From the first purchase to the liquidation, distributions totaled 268% of the buyout price. The Fund's cost basis was higher as its shares were a mix of subscriber in-specie contributions and later open market purchases, but distributions were still about double the Fund's cost, yielding a 100% return.

4. Freemium Isn't Free

Video games draw a mixed reaction from people depending on their personal experience with the games. There are non-gamers, who may consider games a waste of time and money, casual gamers, who view them as harmless pastimes, hardcore gamers, who play regularly as a hobby, professional gamers, who view them as a career in entertainment, and lastly addicts, who spend most of their money and waking hours on games.

The social ills of gaming addiction have been documented and the World Health Organization classifies it as a mental health condition.

Fundamentally, a video game is simply a piece of software that runs either on an accompanying specialized hardware product such as a gaming console (Microsoft Xbox, Sony Playstation, Nintendo Switch etc), or on generic user-provided hardware such as a mobile phone or personal computer. That means it largely shares the same characteristics as software used for office productivity, accounting and so on. So video game companies can theoretically be evaluated like other software companies. Indeed, they have the same characteristics: heavy upfront development with little guarantee of success, but with very high per-unit profitability for hits.

However, because video games are basically entertainment, switching costs are low, and today's customers may not buy their next game from the same studio. This is absolutely not true for office productivity and accounting – witness the virtual monopoly of Microsoft's *Office* and the long dominance of Intuit's *QuickBooks*. This makes video games more risky than productivity software.

In response, video game companies have evolved their revenue models over time. The traditional "one-off retail sale" model has been largely abandoned due to the limited lifetime revenue under this model. Virtually all the pioneering game studios that arose in the 1980s and 1990s, such as **Origin Systems**, **MicroProse** and **Brøderbund** have vanished, victims of escalating development costs. Profits from past hits could not finance the cost of new games. Many were sold or merged with other studios, which were themselves acquired and eventually shut down.

Today's survivors generally rely on either a monthly subscription model, seen in massively multiplayer online role-playing games (MMORPGs) such as *Ultima Online* and *EverQuest*, or the micro-transaction "freemium" model where the basic game is free, but players can buy upgrades to their avatar's appearance and abilities, acquire special items, or even skip waiting times, such as in *Candy Crush*, *Clash of Clans*, *League of Legends* and *Hearthstone*. Some games which have developed into multi-year franchises combine one-off purchases with micro-transactions, covering development costs from the initial purchase and then relying on micro-transactions for future profits. This is seen in *NBA 2K*, *Assassin's Creed* and *Grand Theft Auto*. And then there are games like *World of Warcraft* that combine all three: an upfront purchase, monthly subscription fees <u>and</u> micro-transactions.

Where does the issue of video game addiction fit in this analysis?

It is generally in the interest of society at large to curb video game addiction. Deaths have been recorded in extreme circumstances when gamers played nonstop for days on end, but doubtless the damage to friends, family and society begins at far lower levels of addiction.

Combating addiction means addressing the entire supply chain, from producers (game developers) to distributors (publishers) to consumers (retail customers). While the regulation of video games has so far been limited to age-appropriate ratings for content involving violence, alcohol, drug use, gambling and sex, China's government mouthpiece *People's Daily* recently criticized its largest game company **Tencent** for fostering internet addiction via its freemium hit game *Honour of Kings*. Tencent, for its part, responded by stating it would limit playing time for young players[8].

Most people intuitively accept that the Pareto principle applies i.e. a small proportion (20%) of customers account for the majority (80%) of revenues received by the game publisher and developer.

But the pay/no-pay divide is actually far more extreme. Mobile game platform company Swrve issued a *Monetization Report* which studied over 200 freemium mobile games (covering tens of millions of players) for one month in detail (February 2016). It found that

[8] *Tencent to limit time children play game online amid addiction fears*, **South China Morning Post**, 3 July 2017.

just 1.9% of players made an in-app purchase during any given 14-day period. Of these, the top-spending decile accounted for 48% of the fortnight's revenue. Paying players made an average of 1.8 transactions per month, and spent an average of US$13.82 per purchase.

So 0.2% of all players accounted for nearly half of revenues. Certainly, some of these were casual "pay once" gamers who paid once, got bored and quit. Indeed, 55% of revenues came from just the first day. But 22% of sales came from "Day 5 and beyond", these were likely the top-decile payers.

Skeptics may rightly point out the limited time period covered by the Swrve report. So here are some details shared by specific companies:

Company	Monthly Active Users 2017	Paying Users	Paying %
Baioo Family Interactive	23.8m	1.4m	5.9%
Boyaa Interactive	17.4m (4Q17)	0.8m	4.6%
Ourgame	21.7m	1.4m	6.5%
Zynga	Not given	1.2m	2.4%

For the companies above, their percentages of paying users are higher than the 1.9% reported by Swrve, but still show that the monetization rate is less than 7%.

Clearly, the longer a game's life, the more important regular payers become. Because big spenders are also likely to be heavy players, who are at higher risk of addiction, anti-addiction regulations that seek to curb playing time are likely to hurt video game companies that use the freemium model.

As both the "one-off retail sale" and monthly subscription models are "buffet-style" offerings where players can play as much (or as little) as they like after payment, there is much less financial effect to game companies from limiting playing time.

Perhaps the best recent social commentary on the freemium revenue model comes from the politically incorrect US television cartoon series *South Park*. Episode 6 of Season 18 is titled *Freemium Isn't Free*. It opens with Stan, one of the main characters, being introduced to a freemium game. He quickly becomes addicted and spends large amounts of money on it. As the story develops, viewers are treated to a concise explanation of how freemium games really work (hint: parallels are drawn with alcoholism and gambling addiction).

So investors in video game developers and publishers should be aware of the risks. In the case of Tencent's *Honour of Kings*, more than half its users are below 24 years old, and over a quarter are below 19. These are young adults who may be vulnerable to manipulation through psychological devices built into the design of the games. These design devices include: engaging stories, achievement checklists, fantasy world exploration, high scores, and "leveling up". Each of these is an important ingredient in a successful game, but on occasion they form an irresistible combination that sucks people in. Should China's government decide too many young Chinese are playing instead of studying or working, it may clamp down – hard.

Just how many young Chinese is too many? In March 2018, *Honour of Kings* was reported to have 200 million monthly active users. Half the users are below age 24. How many Chinese are below age 24? 408 million. But 83 million are infants and toddlers below the age of 4; they are almost certainly not playing *Honour of Kings*. If we further remove the 81 million children aged 5-9 years, that leaves 244 million young Chinese aged 10-24, who are either in school or in the early years of their careers. So 4 in 10 of the next generation of young Chinese people are playing *Honour of Kings*.

The obvious questions are:

(i) When will the market reach saturation?

Honour of Kings focuses on heroes from Chinese folklore, so it is essentially a China-only game. 40% of adolescents and young adults already play it. Can penetration reach 80%?

(ii) When will the government do something?

40% of the next generation is held captive. It seems unlikely the government will continue to turn a blind eye. The *People's Liberation Army Daily* has already noted that after allowing smartphones in barracks, some soldiers and officers have become addicted to *Honour of Kings*[9]. It would be foolish to assume regulators are ignoring the costs paid by society for video game profits.

But enough beating on Tencent. Here is a list of some video game companies, including Tencent, along with their key games and revenue models:

Company	**Key Games**	**Genre**	**Revenue Model**
Baioo Family Interactive	*Legend of Aoqi*	Virtual Worlds	Monthly Subscriptions and Micro-Transactions
	Aola Star	Virtual Worlds	Monthly Subscriptions and Micro-Transactions
	Zaowufaze 造物法則 ("Law of Creation")	Role Playing Games	Freemium
Boyaa Interactive	*Texas Hold'em*	Card Games	Freemium
	Fight the Landlord	Card Games	Freemium
IGG	*Lords Mobile*	War Strategy	Freemium
	Castle Clash	Tower Defense	Freemium
Ourgame	*Texas Hold'em*	Card Games	Freemium
	Mahjong	Board Games	Freemium
Zynga	*Words with Friends 2*	Social	Freemium
	CSR Racing 2	Racing	Freemium
Activision Blizzard	*Call of Duty* series	First-Person Shooter	One-Off Purchase and Micro-Transactions
	World of Warcraft	MMORPG	One-Off Purchase, Monthly Subscriptions and Micro-Transactions
	Candy Crush	Casual	Freemium
Electronic Arts	*FIFA* series	Sports Franchise	One-Off Purchase and Micro-Transactions
	Madden NFL series	Sports Franchise	One-Off Purchase and Micro-Transactions
	Battlefield series	First-Person Shooter	One-Off Purchase and Micro-Transactions
Ubisoft	*Assassin's Creed* series	3-D Action Adventure	One-Off Purchase and Micro-Transactions
	Far Cry series	First-Person Shooter	One-Off Purchase and Micro-Transactions
Tencent	*Honour of Kings*	Multiplayer Online Battle Arena	Freemium
Take-Two Interactive	*Grand Theft Auto* series	3-D Action Adventure	One-Off Purchase and Micro-Transactions
	NBA 2K series	Sports Franchise	One-Off Purchase and Micro-Transactions

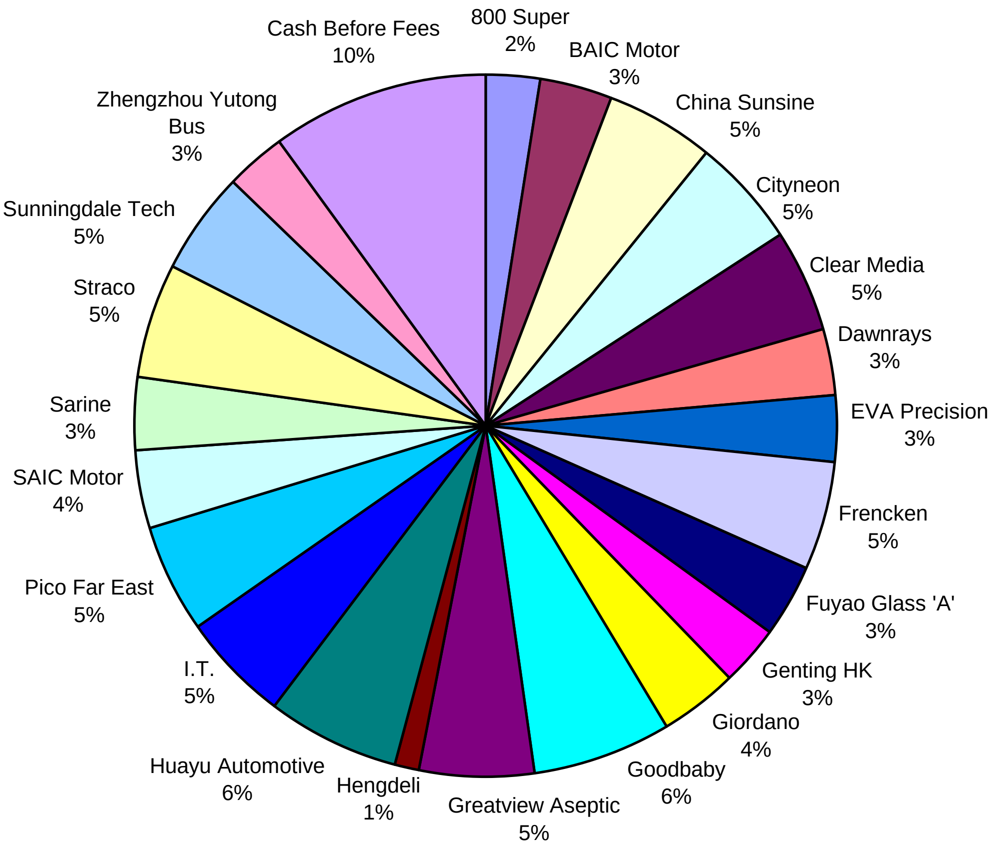
Companies that are highly or fully dependent on the freemium model will clearly suffer more than others if strict play time limits are instituted by regulators. Of course, investors need to make their own choice. *Caveat investor*.

End

[9] *Addiction to online game 'could sap fighting power' of China's army*, **South China Morning Post**, 7 August 2017.

Annex I

Fund Holdings as of 31 March 2018



Annex II

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
2008										34.16	33.49	35.62	**+4.3%**
2009	34.57	33.52	33.37	36.69	46.20	46.00	50.06	49.68	52.66	54.17	56.68	59.94	**+68.3%**
2010	59.05	61.09	65.17	68.27	64.14	65.69	70.65	72.24	81.06	83.56	85.10	90.30	**+50.6%**
2011	87.21	86.29	88.13	92.81	90.85	91.35	91.17	83.69	69.04	78.23	73.00	72.88	**-19.3%**
2012	77.40	82.90	82.52	83.32	76.36	77.25	77.27	77.91	80.57	79.44	82.70	84.92	**+16.5%**
2013	91.43	97.36	99.96	100.24	99.14	95.09	98.50	100.00	100.86	102.24	102.63	102.93	**+21.2%**
2014	99.15	101.78	99.80	101.84	105.45	106.57	109.05	108.58	103.60	103.91	101.87	99.94	**-2.9%**
2015	97.97	98.16	97.74	103.80	103.69	100.99	96.17	85.91	84.17	88.91	86.20	86.35	**-13.6%**
2016	81.56	83.81	88.82	92.18	91.50	91.52	94.48	94.86	94.87	93.34	91.92	90.20	**+4.5%**
2017	93.18	97.08	101.10	101.39	105.74	107.11	109.67	108.57	109.35	112.57	108.28	109.41	**+21.3%**
2018	113.04	109.56	109.03										**-0.4%**

Note: The Net Asset Value of the Fund has been linked to the rebased NAV of the Reference Account, which had the same investment style. Until the launch of the Fund, the Reference Account served as the model portfolio for all the separately-managed client accounts. Its trading records were distributed to clients as proof that the Manager's interests were fully aligned with those of the clients. The Reference Account was started at the end of 2008 and became inactive following the launch of the fund on 1 September 2013.