24 August 2022

2022 Semi-Annual Letter

Barrage Fund

Management report

For the period of January 1st to June 30th 2022, the S&P/TSX posted a return of -9.84% (including dividends) while the S&P 500 generated a return of -18.28% (in Canadian dollars and including dividends). The return of the Barrage Fund for the same period was -42.89% before fees and -43.22% after fees.

Market Commentary

The fund underperformed its benchmarks by a wide margin in the first six months of the year. The two main factors explaining this disparity are inflation and growth expectations.

Inflation

So far this year, the US Fed has raised its benchmark overnight interest rate four times, as can be seen in the table below:

Rate hikes 2022-Present

MEETING DATE	RATE CHANGE	TARGET RANGE
March 15-16, 2022	+25 basis points	0.25-0.5 percent
May 3-4, 2022	+50 basis points	0.75-1 percent
June 14-15, 2022	+75 basis points	1.50-1.75 percent
July 26-27, 2022	+75 basis points	2.25-2.5 percent

Source: Fed's board of governors

Interest rates have an impact on stock prices, since the present value of a company depends on future cash flows discounted to today. In simpler terms, $1 earned in the distant future is worth less than $1 earned now. For example, using a discount rate of 5%, $1 in 10 years would be worth $0.61 today. When rates increase, the present value decreases further. By using a rate of 15% instead, three times higher, this same dollar

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would only be worth $0.25. As a result, buyers of stocks normally demand lower prices when interest rates are higher, often causing a downward revision in prices.

However, interest rates hikes do not only reduce the value of stocks. They also affect the economy and businesses. Indeed, the entire debt markets, whether it be mortgages, commercial loans or auto financing, is becoming more expensive for the users of these loans. In the history of the United States, a series of rate hikes has often led to a recession. An interesting article was published this year by former Treasury Secretary Lawrence Summers and his Harvard University colleague, Alex Domash. It states that since 1955, in the United States, each time inflation exceeded 4% and the unemployment rate fell below 5%, the economy fell into recession within a two-year period. In such an environment, the Fed has no choice but to raise rates, often leading to a drop in economic activity.

Our governments would certainly opt for a soft landing, given the choice. Raise interest rates just a little, inflation calms down, and the business cycle restarts without going through a recession first! Unfortunately, this is more utopia than reality. In an interview[1] last February, Mr. Summers said that when the unemployment rate initially rises by 0.5% (often the consequence of a rate hike), it ends up rising by more than 2% in the end. Slowing the economy just enough to bring inflation down drastically without causing a recession is an extraordinary challenge. Many economists believe that a soft landing, while desirable for society as a whole, is an unlikely scenario.

<u>Growth Expectations</u>

The valuation of our securities is largely influenced by the expectations of investors. The pandemic had created a strong tailwind for our portfolio companies. We have obviously underestimated the repercussions of a return to normal. For example, in the first quarter of 2020, Netflix had seen its new signups explode by 15.8M subscribers, compared to just 8.8M in the preceding quarter. In the quarter ended June 30 2022, the company announced a loss of 1M subscribers.

[1] *Interview with Larry Summers, The Harvard Gazette, February 4, 2022*

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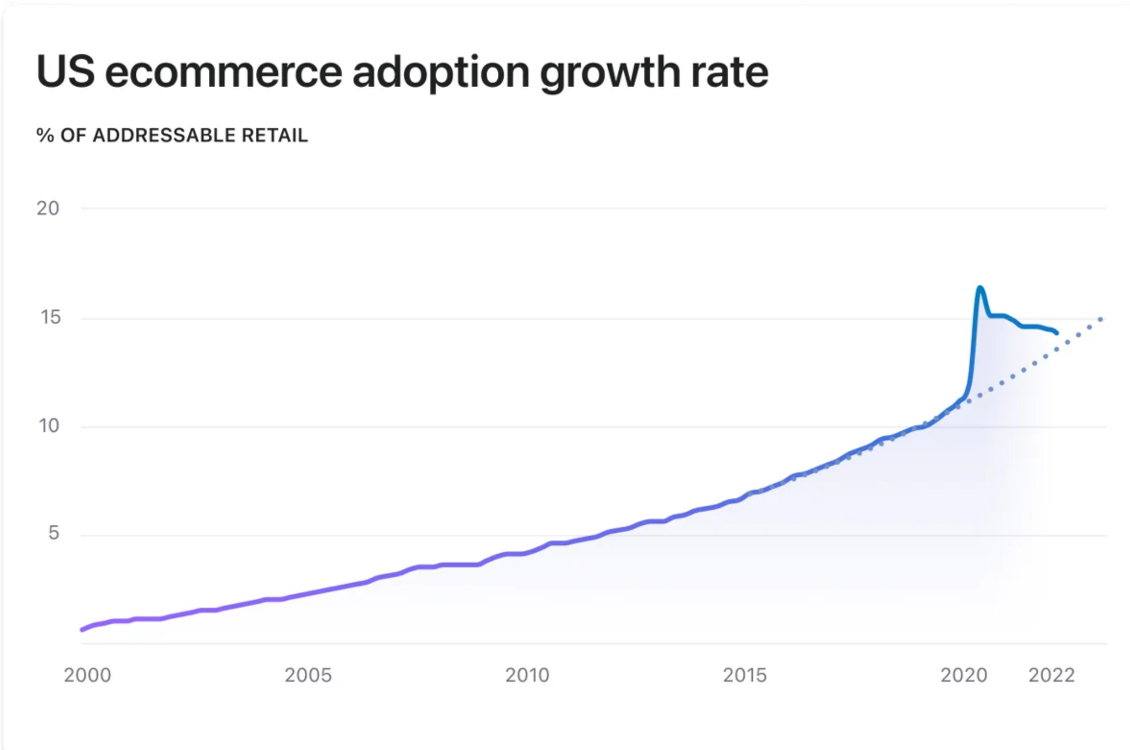
Similar to the trend of digital transformation, the following chart provides a similar insight for e-commerce:



Source: US Census. Seasonally adjusted data.

As depicted, we witnessed a sudden spike in e-commerce adoption in early 2020, driven by the pandemic. For our part, we thought we had moved forward in time by about 2 or 3 years, and we expected a more gradual adoption thereafter. However, this was not the case. So, either the effect of the pandemic is fully absorbed, or we are entering a recession. We believe the truth lies somewhere in between.

The slowdown in the sector is felt everywhere. Towards the end of July, Tobi Lütke, founder of Canadian e-commerce platform Shopify, said that he had overestimated the continued growth of online commerce leading to the company shedding 10% of its employees.

On August 2, Alphabet told its employees that it wanted them to be more productive in the face of an uncertain future. No layoffs are expected, but it appears that the way is being paved in case it becomes necessary. Similar story at Meta Platform: direct supervisors were recently asked to find underperformers, in the context of possible dismissals. As for Amazon, it declared on May 5 that after several years of intense hiring, it has too many employees in its distribution centers.

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According to analysis carried out by CrunchBase on July 7, at least 143 US tech companies have laid off more than 24,000 people this year, with more than 50% of these headcount cuts being initiated in June. Just 20 days later, job losses would amount to 32,000. Even Microsoft has not been spared, it's looking to eliminate positions following a desire to reorganize, even if it plans to increase the number of employees down the line this year.

As we mentioned in our previous letter, the years 2010-2019 make up the only decade in the entire history of the United States in which we have not seen a recession. With a job market still booming, we seem to have had a narrow escape so far, although the prices of our securities as well as the slowdown in earnings we are seeing seem to indicate that it has begun.

A recession is classically defined as two quarters of gross domestic product (GDP) decline. In the United States, GDP fell by 1.6% in the first quarter of 2022, and 0.9% in the second quarter. The 0.9% decline is subject to revision since the data is recent, but these figures point to a recession. On the other hand, the U.S. had 11 million job openings with only 6 million people out of work by the end of July. Some economists say that if the unemployment rate is below 4% as it is now, there can be no recession. Hence the eternal question: are we in a recession, and if not, is it coming soon?

Although our shares were strongly affected by these fears during the first half, we are reassured by the good performance of our companies. Certainly, we are seeing a slowdown, as you can read in the comments below. However, regardless of the magnitude of the coming storm, we are confident in the long term.

Real estate?

We stopped commenting on real estate a while ago. For a long time, we were rather pessimistic about this sector, in particular because of the possibility of a rise in rates. Expecting such a scenario, we obviously underestimated the length of the bull cycle. Real estate, through listed securities, is a sector that we follow, but its popularity has made it difficult to find bargains. The higher rates go, the more we hope to eventually unearth interesting situations.

Ironically, we sometimes read headlines that indicate the complete opposite of how we feel about the sector. For example, one could read this article title in a recent publication:

"Rising interest rates are holding back real estate. But does the sector still offer opportunities?"

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In our opinion, the title should rather be rephrased as follows: “Rising interest rates affect real estate. Will the sector finally offer opportunities?”

Results of our companies

Amazon and Microsoft

The extraordinary growth rate of Amazon’s retail segment is proving a thing of the past. In the first quarter of 2021, we had seen growth of 40% and 60% for the North American and International divisions respectively. In the 2nd quarter of 2022, the growth rates were 10% and -12%. Overall, Amazon’s total sales grew 7%, or 10% in constant currencies.

Like the entire industry, Amazon’s retail division has been affected by the slump from the effects of the pandemic. We are witnessing similar variations among competitors. Walmart saw sales climb just 2.3% and operating profits fall 23% in the quarter ended April 30. Shopify meanwhile grew 16% in the quarter ended June 30, which doesn't sound too bad. However, sales had increased by 57% in the comparable quarter last year, and on average, Shopify has grown its revenues at an annualized rate of 70% over the last ten years. This slowdown was enough to push its operating income into the red.

The division that interests us the most at Amazon continues to grow at breakneck speed. Amazon Web Services (AWS) grew its sales and profits by 33% and 37% respectively. With such strong performance, AWS continues to weigh more and more heavily in the results.

Looking at sales, this influence is more difficult to perceive, as cloud represents only 16% of the total. On the profit side, however, the annualized amount has reached US$23 billion, equivalent to 90% of the company's total profits in 2021.

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With the slowdown in retail, we can see that Amazon would have ended the quarter with an operating loss if it weren't for AWS[2]:

AMAZON.COM, INC.
Segment Information
(in millions)
(unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2021	2022	2021	2022
North America				
Net sales	$ 67,550	$ 74,430	$ 131,916	$ 143,674
Operating expenses	64,403	75,057	125,319	145,869
Operating income (loss)	$ 3,147	$ (627)	$ 6,597	$ (2,195)
International				
Net sales	$ 30,721	$ 27,065	$ 61,370	$ 55,824
Operating expenses	30,359	28,836	59,756	58,876
Operating income (loss)	$ 362	$ (1,771)	$ 1,614	$ (3,052)
AWS				
Net sales	$ 14,809	$ 19,739	$ 28,312	$ 38,180
Operating expenses	10,616	14,024	19,956	25,947
Operating income	$ 4,193	$ 5,715	$ 8,356	$ 12,233

Source: Amazon earnings release

Note that the quarter ended with a net loss of US$2 billion, due among other things to the drop in valuation of several investments, the largest being Rivian, for which a reduction of US$3.9 billion was recorded. Amazon owns an 18% stake in Rivian, with whom it signed an agreement in 2019, with the aim of acquiring 100,000 electric delivery vehicles by 2030.

As for Microsoft, revenues appreciated by 12%, and 16% in constant currencies. However, profits only grew by 2%, and 7% without the currency effect. We clearly see the impact of some slowdown coupled with increased expenses. However, we are satisfied with the results.

Azure, their cloud division, saw revenue increase by 46%. LinkedIn is still riding the wave of the job market, up 29%. In contrast, Xbox continues to disappoint with a 4% decrease. The segment that includes the licensing of the Windows operating system to manufacturers of personal computers also contributed to the slowdown in sales. The increase in sales was modest. It should be noted, however, that this division, although

[2] Similar to other divisions, AWS suffered a decline in profits from Q1 2022, when profits hit US$6.5 billion. This is due to a significant increase in expenses in the 2nd quarter.

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mature, is proving to be very profitable, and contributes to a well diversified and solid global company, while enjoying a strong engine of growth through the cloud.

Did we miss an opportunity to sell or reduce the position? In November 2021, CEO Satya Nadella sold half of the shares he held in Microsoft, allowing him to pocket US$285 million. The stock was trading around $330. Having hit a low of $242 last June, the question arises.

However, it often proves difficult to know the motivation for insider selling. For purchases, there is almost always only one reason to justify the transaction: the desire to make a profit, or sometimes to take control of the company. In the case of a sale, it may be a need for money to finance a personal expense or an important project. In Mr. Nadella's case, we think it might be a tax issue. The state of Washington, where he resides and where Microsoft's headquarters are located, planned to impose a new 7% tax on all capital gains for shares held for more than a year. This tax had been voted on in April and was to take effect on January 1, 2022. The sale took place a few weeks before the new tax came into force, constituting a possible motivation for Mr. Nadella.

<u>Netflix and Spotify</u>

Another notable insider transaction did not go unnoticed. Towards the end of January 2022, Netflix CEO Reed Hastings shelled out $20 million to buy stock in his company immediately after it plummeted. Following the pessimistic outlook provided by management for Q1 2022, the stock tumbled from $508 to around $360. Mr. Hastings would have made his purchase at prices between $375 and $393. Obviously, for us, this was a sign of confidence from a leader.

However, just a few months later, the stock hit a low of $162, a price around 60% lower than Hastings's acquisition price. If he had the benefit of foresight, he could have amassed 2.5x more shares for the same amount, simply by having waited four more months. This reminds us how difficult it can sometimes be, even for the leaders themselves, to predict the future of a company.

Fortunately, management moved quickly to adapt its business model to the challenges of the streaming industry. Several factors can explain the loss of subscriptions during the first 6 months of the year: the war in Ukraine, higher interest rates, as well as the tailwind of the pandemic turning into a headwind. However, we must not ignore the competition in the sector, which has certainly had an impact on subscriber growth.

This is why Netflix's management team somewhat surprised us when they announced the creation of a new ad-supported subscription plan. Reed Hastings once said, *"Google and Facebook and Amazon are tremendously powerful at online advertising because they're integrating so much data from so many sources. I think those three are going to get most of the online advertising business."*

These words are from early 2020. There was no talk of getting into advertising, despite the rumours that were circulating. However, a lot has happened since. Netflix experienced strong growth at the beginning of the pandemic, in Q1 2020, when the number of subscriptions suddenly exploded by 15.8 million, compared to the 7 million the company expected. Then 2022 hit hard, with a loss of 200,000 subscribers in the first quarter, and nearly 1 million in the 2nd quarter.

When announcing its first-quarter results in April, Netflix caused a stir among shareholders, when it forecasted a loss of 2 million subscribers over the next 3 months. Eventually, the losses were half the forecast. For the 3rd quarter, the company forecasts a gain of 1 million subscribers. In response to this slowdown that it has been facing since the beginning of the year, an important decision was made by incorporating an ad-supported tier.

An exclusive partnership has been struck with Microsoft, and the service will begin in 2023. Note the choice of partner here: Netflix did not partner with any of the big 3 players in online advertising mentioned by Reed Hastings above. Netflix will, however, continue to host its streaming service on AWS (Amazon).

Netflix also disclosed that approximately 100 million non-paying households use another household's account. Normally, only people from the same household can use the same account. The company plans to crack down on this, and plans to offer a plan with an additional cost for those who wish to continue doing so. However, we know very well that until now, this type of sharing has probably partially contributed to customer loyalty. If your household shares the account with another, you'll be less likely to close the account, especially if it's just to save a monthly fee temporarily while you consume content at Disney+ or Amazon Prime Video. However, the company expects to see gains with this initiative, and has started testing in some Latin American countries, eventually extending the operation to all its customers.

Ultimately, the company will be able to continue to grow by acquiring accounts at a lower price point, while also earning advertising revenue, and will find itself competing head on with other providers with a similar model.

As for the content and its distribution, the company has made some changes. For series popular with its members, full seasons will not always be available at once. Some strategic staggering will help maintain subscriptions. The total content budget has also been revised and set at US$17B (from US$17.7B in 2021), to be adjusted in line with

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growth. Netflix plans to be more selective, and also to aim for more quality rather than quantity.
Not surprisingly, some analysts have revised Netflix's price sharply downwards. This is a typical reaction. We believe that target prices should not deviate too much from the stock market price in general, in order to look realistic. For example, on June 10, Goldman Sachs implemented a sell recommendation for Netflix, with a target price of $186 instead of $265 over a year. The stock was trading at around $192. However, the stock has just reached $ 234 at the time of writing.

When we price a security, we take into account the long-term outlook, regardless of the price at which it trades on the stock market, which can cause large discrepancies. We strive not to be influenced by short-term variations. They often offer us buying opportunities, and the pessimism of some analysts only contributes to this phenomenon.

On the Spotify side, although we have seen some slowdown on the advertising side, we are pleased with the Q2 numbers. Total monthly active users reached 433 million, up 19% year-on-year. Paid subscriptions grew by 14%, and free ad-supported users by 22%. Revenues increased by 23% (15% in constant currencies). Notice the opposite effect of currencies here. As the US dollar has appreciated against many currencies in recent months, foreign companies have an advantage, unlike those headquartered in the United States. Spotify being a Swedish company, it is currently one of the beneficiaries.[3]

As for advertising revenues, the segment that we believe will contribute more meaningfully to the company's growth thanks to podcasting, it increased by 31% (17% in constant currencies).

Founder Daniel Ek recently showed us once again his confidence in his company. Last May, he disclosed that he purchased $50 million worth of Spotify stock. The stock was trading at just over $100. On August 23, 2021, he had invested 31 million euros (US$36.5 million) to acquire warrants (the equivalent of long-term call options) which would allow him to buy shares at US$281.63 each.

Since these warrants cost him $45 per share, the share price must exceed $327 before he makes a profit! As these warrants expire on August 23, 2024, he has two more years.

These purchases seem even more impressive to us, knowing that Mr. Ek takes practically no salary. Top executives appear to receive competitive salaries, but Mr. Ek does not rely on his compensation to further enrich himself. He owns almost 17% of the shares of

[3] We don't placed outsized importance on long-term currency effects, but in the short term, as can be seen, large swings can mislead the investor.

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Spotify, and if he wishes to add to his position in Spotify, he must tap into his personal fortune elsewhere.

Name and Principal Position	Year	Salary ($)	Bonus ($)	Option Awards ($)[1]	Stock Awards ($)[2]	All Other Compensation ($)	Total ($)
Daniel Ek (CEO)	2021	— (3)	— (3)	—	—	104,885 (4)	104,885
	2020	— (3)	— (3)	—	—	490,334	490,334
	2019	— (3)	— (3)	—	—	336,462	336,462
Paul Vogel (CFO)	2021	600,000	—	2,431,812	1,999,968	8,700 (5)	5,040,480
	2020	595,386 (6)	—	1,663,708	1,750,063	8,550	4,017,707
Dawn Ostroff (Chief Content & Advertising Business Officer)	2021	1,000,000	—	5,836,456	1,599,974	389,550 (7)	8,825,980
	2020	1,000,000	—	2,139,061	6,750,006	87,250	9,976,317
	2019	1,000,000	1,000,000	1,500,679	3,974,952	8,400	7,484,031
Gustav Söderström (Chief Research & Development Officer)	2021	331,858 (9)	—	8,511,467	—	95,172 (8)	8,938,497
	2020	364,520 (9)	—	6,464,706	—	95,889	6,925,115
	2019	320,514 (9)	—	6,682,200	—	113,494	7,116,208
Alex Norström (Chief Freemium Business Officer)	2021	345,133 (9)	—	3,769,411	3,100,031	92,919 (8)	7,307,494
	2020	379,101 (9)	—	2,852,095	3,000,048	102,290	6,333,534
	2019	333,335 (9)	—	6,002,664	—	91,379	6,427,378

Source: sec.gov/edgar

Mr. Ek is therefore fully invested, and he and his team are working hard to grow the podcast segment, which is Spotify's future growth engine. There are now 4.4 million podcasts on the platform, and to add audiobooks, the company acquired Findaway, for US$123 million. Spotify will therefore compete with Amazon's Audible.

Finally, the company is still not profitable. Although it's on the verge of profitability, and despite the recent encouraging signs in the latest results, the stock remains subject to high volatility, as we experienced during the first half of the year.

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Alphabet and Meta

The online advertising sector clearly showed signs of slowing down in the 2nd quarter. Let's take a look at the variation in the revenues of some competitors and our companies for this period:

Company	Growth in Q2 '22	Last Year	Year-over-year Stock Decline
Roku	18%	81%	-80%
Snap	13%	116%	-86%
Pinterest	9%	125%	-62%
Alphabet	13%	62%	-13%
YouTube	5%	84%	N/A
Meta	-1%	56%	-51%

In the same quarter last year, results were boosted by the rebound following the pandemic, whereas in the current quarter, we are facing a major slowdown, creating this gap. These stocks have therefore been battered over the past year.

Currency fluctuations also had a significant impact. For example, Alphabet grew its revenue by 16% without this variation. As for Meta, its growth would have been 3%, rather than -1%. For YouTube, we've included its results because it's probably Alphabet's most promising segment, and the results demonstrate how much the tide has changed in just one year. Let's add that without the currency effect, sales would have increased by 7% at YouTube.

Alphabet's cloud division, Google Cloud, increased its revenue by 36%. It remains unprofitable, however, and unlike Amazon and Microsoft, its impact on total revenues remains subdued, given the more modest size of this 3rd player in the cloud industry.

In the event of a recession, cuts in the advertising budgets of merchants and companies are to be expected. However, since Alphabet and Meta operate like auctions, the cost of advertising declines when demand plummets. As we experienced during the pandemic, a drop in the price to pay to publish an ad generates greater demand, and brings in new customers. In these more difficult times, merchants will seek to maximize their advertising, and will be more inclined to convert to digital advertising if it becomes

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available at a better price. This further enhances the transition to online advertising, which is positive in the long run.

As we saw above, Meta's growth has stalled. In our view, this is caused by the combination of increased competition along with the general slowdown in the sector. The company continues to push its new product, Reels, to counter the Tik Tok threat, and this product is now generating annualized revenue of US$1B. Like Meta using Instagram in fighting back against Snap a few years ago, we believe the company is adopting the strategy necessary to secure its dominance in the social media world, and thus eventually return to growth.

Some are worried about the likely changes to come on the side of Alphabet (Google) to target advertising. Note that Meta is adjusting with the iOS14 changes implemented by Apple last year. The company suffered a revenue loss of US$10 billion, accounting for 8% of the total. Although this is a significant amount, we are confident that with all the investments in artificial intelligence, the company will succeed in solidifying its competitive position. His experience with Apple will serve as a guide for any possible change with Google.

If we had one criticism to make of management, it would be that they did a US$9.5B share buyback in the first quarter, compared to only US$5B in the second quarter, when the stock was trading at a lower price. Meta still holds US$40B in cash and generated free cash flow of US$6.6B in its most recent results. Is this being overly cautious? Analysts forecast $11.35 in earnings per share for 2023. Adjusted for cash, that’s less than 14x earnings, a price lower than the low reached in March 2020, in the turmoil of the pandemic. Nonetheless, with the significant expense involved in developing Reels, as well as a looming recession, we appreciate management's caution.

Airbnb

The travel industry has bounced back. As you can see below, air travel bookings this year have surpassed 2019. Airbnb is benefiting, indirectly. This graph also indicates that the company had to withstand a sharp decline in activity globally in 2020, and outside the United States in 2021. Note that last year, Airbnb benefited from the popularity of domestic travel in America, as people opted for destinations closer to home.

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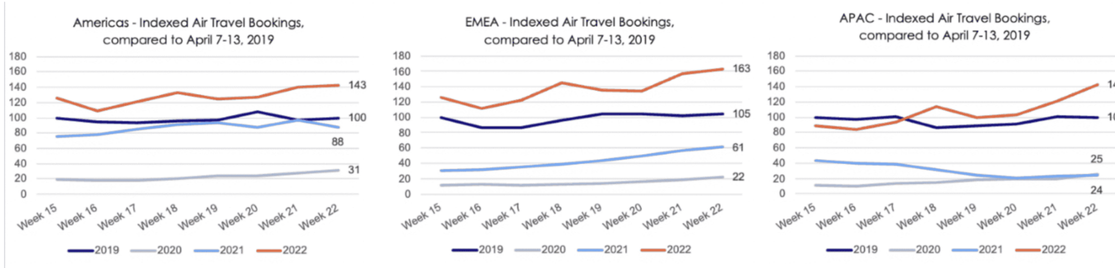

Source: Indexed Air Travel Bookings compared to April 7-13, 2019 (pre-pandemic baseline). Americas, APAC, EMEA, taken from Criteo.com, July 5, 2022

Gross booking value (the total amount charged to customers) increased 27% year-on-year (34% without currency effect). In addition, 3-year growth reached 73%, demonstrating Airbnb's clear progression from the pre-pandemic period. As for revenues, they grew by 58% year-over-year, and by 73% over 3 years, following the increase in bookings. In the last quarter, these revenues corresponded to 12% of the total amount charged to customers, including all fees and taxes.

The company believes it has performed significantly better than the travel industry since the pandemic began. Long-term stays, i.e. those lasting at least 28 days, continue to grow, and management sees potential in this. These stays are favoured by the development of remote work. Also, long-term stays make it possible to respect certain restrictions imposed by the local authorities in some cities. For example, in New York in 2016, a law was passed to prohibit stays of less than 30 days if the owner is not present on site. The company must therefore adapt to the regulations of the different cities. Founder Brian Chesky and his team are doing a great job at this.

During the unveiling of the latest results, the company announced a share buyback of US$2 billion, demonstrating their confidence. The stock's weighting in the portfolio currently remains below 5%, but we continue to monitor the company closely.

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Administrative information:

We would like to take this opportunity to remind you that this fall we will be updating the regulatory information in your investor profiles. At the same time, we will be asking for your authorization to collect and retain this information in accordance with the new *Act respecting the protection of personal information in the private sector.*

We wish you an excellent end of summer. We look forward to writing to you again in February 2023.

Sincerely,

Patrick Thénière

Rémy Morel

Mathieu Beaudry

Maxime Lauzière

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