SAGA PARTNERS

SEMI-ANNUAL UPDATE

SECOND HALF 2023

H2 2023 Results

During the second half of 2023, the Saga Portfolio ("the Portfolio") increased 40.2% net of fees. This compares to the overall increase for the S&P 500 Index, including dividends, of 8.0%. For the full year 2023, the Portfolio increased 204.6% net of fees compared to the S&P 500's 26.3%.

The cumulative return since inception on January 1, 2017, for the Saga Portfolio is 69.3% net of fees compared to the S&P 500 Index of 141.4%. The annualized return since inception for the Saga Portfolio is 7.8% net of fees compared to the S&P 500's 13.4%. Please check your individual statement as specific account returns may vary depending on the timing of any contributions throughout the period.

Performance			
	Saga Portfolio (gross)	Saga Portfolio (net) (1)	S&P 500 Index (2)
2017	16.0%	14.3%	21.8%
2018	2.1%	0.6%	-4.4%
2019	65.6%	63.2%	31.5%
2020	123.8%	120.5%	18.4%
2021	-9.6%	-10.9%	28.7%
2022	-84.7%	-84.9%	-18.1%
H1'23	118.9%	117.3%	16.9%
H2'23	41.2%	40.2%	8.0%
2023	209.2%	204.6%	26.3%
Cumulative	88.1%	69.3%	141.4%
Annualized	9.4%	7.8%	13.4%

(1) Saga Portfolio serves as a model for client accounts. Net returns assume 1.5% management fee.
(2) S&P 500 performance includes dividends. Please see disclaimer at the end of this letter regarding comparison to indices.

Interpretation of Results

Despite the share prices of our companies increasing from their 2022 year-end lows, returns since inception remain below the S&P 500 Index. That is disappointing since the goal is to outperform over the long term. What else is the point of actively picking stocks if it is not to beat a passive index?

As I reflect on the last seven years since the Saga Portfolio's inception, obviously mistakes have been made. Under Armour and GoodRx are bigger ones that come to mind. Mistakes are bound to happen since we are working with a foggy future. The goal is for the more successful investments to outweigh the disappointments in order to provide an overall attractive result.

The irony is that the mistakes were not what led to the majority of the Portfolio's decline in 2022. They only made a modest dent to results. It was the share prices of Carvana, Roku, Redfin, and Meta Platforms that made up the majority of the 2022 drawdown and relative underperformance. It was those companies that I considered, and still consider to varying degrees, some of the most promising long-term opportunities. Where their share prices are today is what makes me excited for the future results of the Portfolio.

Identifying investing mistakes is not always obvious. It is not perfectly clear if prior decisions were good or bad just because a certain outcome has occurred thus far. Owning a stock with a declining share price is not a mistake in and of itself. If one decides to actively seek out misunderstood stocks that the market undervalues, it does not mean that those stocks will become better understood by the market immediately after purchase or within the timeframe they desire. Even the very best businesses endure challenging periods or perhaps miss short-term expectations that result in significant share price declines. It can be difficult to decipher whether deteriorating fundamentals and a falling share price are a near-term setback that will be overcome in time or are more permanent in nature and appropriately reflect a less promising future. During such times, the only person one can look to for answers is oneself, because the market, headlines, and majority of other people will be yelling “SELL!” regardless of whether the company has a bright future.

Perhaps the most widely followed example of a company in the Saga Portfolio that faced extreme share price volatility and fundamental challenges, while the investment thesis remained intact was Meta Platforms. During 2022, Meta experienced multiple competitive threats surrounding Apple’s iOS App Tracking Transparency (ATT) changes that limited sharing user data across apps, the rise of TikTok, and increased scrutiny surrounding spending on its Reality Labs segment. Headlines framed Meta as a company that could easily be disrupted by the next social media trend, dependent on the whims of Apple, and a reckless CEO who was hellbent on his wasteful pet project, the Metaverse.

One could point to stagnating advertising revenues, rising expenses, and increased capital expenditures that resulted in declining free cash flow as signs of a business in trouble. Anecdotally, there were unhappy employees and numerous articles and surveys of teenagers viewing Facebook and Instagram as “uncool.” Wall Street analysts explained the low valuation multiple on terminal value risk and critics claimed long-term investors in the stock suffered from thesis drift, unwilling to admit they were wrong.

This fed into a falling stock price that led to further price declines. The first 50% price drop to $190 may have been a buying opportunity, but was the second 50%+ decline to $90 a signal of a company in terminal decline? Emotions run high as investors see their paper wealth disappear. Investors think, “it’s been over seven years with zero return. I should have just bought the S&P 500 Index! How could management have been so careless with investors’ capital?” I summarized my views surrounding Meta at the time in the Appendix of the Q2’22 Saga Investor Letter.

Mark Zuckerberg was put through the wringer by the media. If one was able to look past the headlines and dig a little deeper, Zuckerberg had historically been very transparent in explaining his vision and goals for the company and successful in executing on that vision. During 2022, Meta faced very real challenges and Zuckerberg was clear about the company’s strategy in addressing those challenges going forward. Despite the negative sentiment surrounding Meta, active user and engagement trends remained strong through the end of 2022. Reels, Meta’s shortform video product in response to TikTok, was growing rapidly but was not yet being fully monetized. If the company continued to execute well, then the fundamentals would eventually recover, and the market would revalue the company higher.

Regardless of what happens to a company’s share price in the short-term, it must eventually track the long-term earning power of the company. If Meta consistently earned $50 billion in free cash flow and was valued at a $200 billion market cap, it would not take long for the company to repurchase all outstanding shares. As fewer shares become available to purchase, the remaining shareholders would require a higher price to sell. Of course, determining Meta’s earning power far into the future is the determining factor.

Even if a company currently generates no free cash flow because they are reinvesting in growing earning power and therefore not able to repurchase shares, eventually the company's reinvestment opportunities will become saturated. Growth will slow and the true earning power of the company will shine through, which can then be allocated to dividends or share repurchases if shares appear undervalued at that time. For companies with significant attractive reinvestment opportunities, they may have a long runway and many years of little to no free cash flow as earning power continues to compound. Amazon has been a prime example of this over the last 30 years.

Fast forward one year and the results and narrative surrounding Meta (and Mark Zuckerberg) shifted rapidly and share prices rebounded faster than headlines could have anticipated. While most would celebrate a rising share price, for long-term owners of Meta it was in their best interest for the share price to remain at $90, or to have fallen even further. It may not feel that way during the drawdown, but Meta owners want the company to be executing exceedingly well, providing attractive fundamental results, and celebrate when shares go *down*, not up. The cheaper the shares, the more Meta can repurchase at attractive prices or if one was a net saver, they could buy more Meta shares at lower prices.

This is not how most public stock market participants think. Most are interested in selling their shares to others at a higher price than they recently bought them. They follow a strategy more common in private equity of trying to buy and then flip companies at modest gains, as fast as possible. When share prices fall, they can no longer sell for a gain and become worried if they will ever be able to sell them at their previous highs or that it will take so long to make up their recent "losses." They are not interested in the long-term intrinsic value of the company but in management doing everything possible to boost the share price as much and as fast as possible even if it's not in the best long-term interests of the company. It is a seller's philosophy, not an owner's.

Many consider it a mistake to hold shares that crash from past highs. In fact, conventional portfolio theory equates a stock's volatility with its risk. Avoiding drawdowns, regardless of how temporary, is believed to be good portfolio management. However, any stock over a long enough period will experience significant drawdowns. Therefore, if planning to own shares over the long-term, one should expect drawdowns to happen at some point. Assuming one has discovered a highly attractive long-term investment, attempting to sell at interim peaks and buy back at troughs is more likely to limit the gains as opposed to the losses. That is more a game of mass psychology in trying to guess what others are going to guess the share price will do in the near term as opposed to forming expectations about what returns shares will provide if they were held for the company's remaining life.

One could even make the argument that a highly volatile stock is a sign that the market has difficulty valuing the company. If one can truly understand a company's intrinsic value while the market appears to have little idea, then volatility represents opportunity, not risk. Risk is overpaying for the eventual cash returned to owners. If one can form a good explanation for why the market is underappreciating a company's long-term future, which is the essence of investing, then share price volatility just provides more opportunity along the way.

Portfolio Review

Even though I continue to stress the philosophy of approaching the stock market with an owner's mentality, that does not mean it is a "never sell" philosophy. For example, the Saga Portfolio sold the last of our Meta shares during the first quarter of 2024. Thinking like an owner means expecting the return to shareholders to come from the cash that is distributed to you over the life of the company as opposed to trying to sell your shares to someone else at a higher price. My approach to investing is: 1) identify companies whose long-term earning potential I think I can determine within a certain range, and then 2) allocate among the most attractive opportunities. Even though Meta's shares still look attractive at current prices in my opinion, they do not look nearly as attractive when compared to other current opportunities.

I do not consider exchanging ownership from one company into another lightly. It is extremely rare to find a company that I have a solid understanding of its future *and* the market is underappreciating that expected future by a wide margin. There are numerous businesses that future earning power seems pretty clear, but the market appears to either fairly value or even overvalue those futures. History suggests that the majority of stocks underperform the market over the long term, meaning most stocks are overvalued at any point in time. Coca Cola or Costco may be great businesses with bright futures, but that does not necessarily mean their stocks will provide outsized returns from current prices.

Some of the best opportunities are in companies that I expect the future to look different than the recent past, not because their core services change but because they will be providing them on a much larger scale. If you look back five or ten years at what the companies we own were doing, the core value proposition and competitive advantages were much the same as they are today. I have referred to this as surfing big waves. This is a good hunting ground for mispriced opportunities because the market tends to anchor on recent results and then extrapolate them far into the future. That is reasonable because companies that are able to grow by reinvesting capital at high returns for long periods of time are extremely rare. Expecting a company to have average future results as opposed to exceptional ones is typically a prudent bet to make. It can feel uncomfortable to pick Trade Desk over Google, Carvana over CarMax, Roku over Netflix, or Redfin over Zillow. However, if there is a good explanation for why a company will continue to win far into the future and the price of shares relative to that outlook appears very attractive, then it stacks the odds of a good outcome in one's favor.

For this portfolio review I want to provide an update on the progress of some of the largest holdings; Carvana, Redfin, and Roku. Given the length of the write-ups, I put them in the Appendix below for those interested in reading them. The general message is that after adjusting to 2022's operating environment, strong progress was made during 2023, and despite these developments, shares continue to sell at depressed levels, in my opinion.

Conclusion

As I reflect on the past few years and the Saga Portfolio's prospects, it is even more clear to me that from an investor's standpoint 2022 was truly the best of times. But from a portfolio manager's perspective, it was the worst of times. As an investor I love when the share prices of our companies go down. I want share prices to be highly volatile, assuming the business continues to widen its moat and grow intrinsic value per share over the long-term. Paradoxically, that is the opposite of what I want as a portfolio manager. As a portfolio manager I want nothing more than to provide consistent market-beating returns for the Saga Portfolio investors, i.e. I want our stocks to go up. It feels good to report big consistent returns and it does not feel good to report steep drawdowns. That is the inherent conflict of interest that portfolio managers face even if they are trying to think and act like long-term owners of businesses. The long-term interests of investors and portfolio managers are aligned (market outperformance), but the short-term emotions and incentives are what cause the conflict (consistent results with no drawdowns).

The last few years have been a stress test for whether the Saga Portfolio could endure such volatility. I expect that when we look back many years from now, 2022 will prove to have been a benefit to ultimate returns. Just as a forest fire clears away debris for the surviving trees to flourish, the last few years have put our companies and their competitors to the test. The very same companies we owned during 2022 became leaner and stronger in 2023 and are in even stronger positions as they navigate 2024 and beyond. Their competitors, on the other hand, are generally either in relatively worse positions, acquired, or no longer exist. In aggregate, I believe our companies' intrinsic values are higher today than two years ago, but the market is far from fully appreciating their improved prospects. That is exactly the situation I love as a long-term investor.

It truly is a privilege to manage your hard-earned capital. The Saga Portfolio's success will always be directly correlated to an investor base that is aligned, stable, and thinks long-term. That is what makes it possible to navigate the inevitable ups and downs of the market. As always, please reach out if you have any questions or comments!

Sincerely,

Joe Frankenfield

Appendix A - Carvana

Most understand Carvana's customer value proposition at this point. I think the benefits of being able to select from tens of thousands of used cars, followed by a seamless checkout with no price haggling, have the car delivered to your door or a nearby vending machine, at a price that is similar if not better than traditional dealerships, and trust they can return it no questions asked are obvious. The question has always been, and seriously doubted during 2022, whether Carvana could provide all this value across numerous dimensions…profitably. Therefore, I want to dig a little more into the complexity of Carvana's business, how that played into its unit economics during the past few years, and the outlook for the business as it stands today.

On the surface, Carvana's business appears fairly simple as a used car retailer. However, it is much more than just an e-commerce company with a nice webpage linked to car inventory. Beneath the surface is an integrated network that enables a seamless customer experience that few if any other companies can match.

The chart below helps depict how Carvana has approached buying and selling used cars in a completely different fashion than traditional dealerships, shifting what was a highly variable service into a much more fixed one that centralizes and automates much of the vehicle and customer journey.

Vehicle Journey	Dealership	Carvana	Enabling Technology
Purchasing	Car buyer (often in-lane)	Automated, Centralized	Machine learning, Algo decisioning
Transport	Third-party	First-party	Algorithmic decisioning, Vertical integration
Reconditioning	Service Department	Centralized	12 software systems, Owned & licensed
Photography	Sales Consultant	Centralized	Patented studio, Proprietary processing
Merchandising	Sales Consultant	Automated, Centralized	Full stack ecommerce

Customer Journey	Dealership	Carvana	Enabling Technology
Marketing	Advertising/Marketing Mgr	Automated, Centralized	Machine learning, Proprietary attribution
Vehicle Discovery	Sales Consultant	Self-service, Centralized	Full stack ecommerce
Customer Service	Sales Consultant	Self-service, Centralized	A.I., Custom systems for Advocates
Financing	F&I Director/Producer	Self-service, Centralized	Full stack finance platform
Ancillary Products	F&I Director/Producer	Self-service, Centralized	Proprietary systems and integrated finance
Trade-ins	Car Buyer	Self-service, Centralized	97% automated, ML-driven
Vehicle Delivery	Sales Consultant	Vehicle Transporter/Delivery Adv.	Algorithmic decisioning, vertical integration
Title & Registration	Clerical Staff: AP/AR/Title	Automated, Centralized	Automation, Custom tooling

Source: Carvana's 2018 Investor Day Presentation

If you visit one of Carvana's inspection and reconditioning centers (IRCs), you get the sense Carvana is more of a manufacturing business than a retailer. IRCs can work on any aspect of any car to ensure it meets the quality required of a retail vehicle. Its processes are increasingly broken down into standardized procedures as opposed to ones based on variable human judgement. It enables fast and efficient operations so that it turns out a similar quality car whether it was reconditioned in a Florida IRC or one in Ohio. More decisions are codified into a centralized enterprise-wide software that optimizes for the company as a whole opposed to what seems right in an isolated task. If at any stage the software systems determine that the expected cost of repairs is too high to generate the targeted gross profit, the car moves to the wholesale channel.

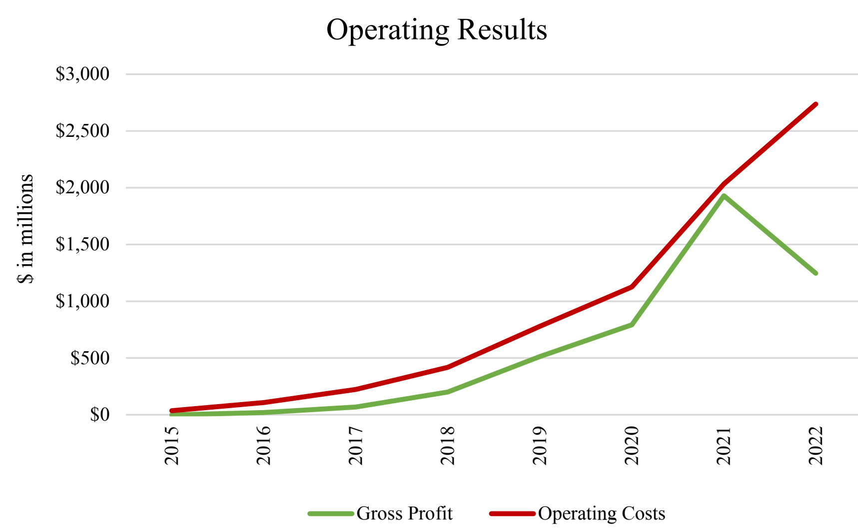
Carvana's logistics are connected to the entire network and reconditioning workflows. This enables Carvana to move cars around the country faster and at a fraction of the cost of typical, third-party car haulers, which is what makes it possible to pool inventory nationally. It also facilitates customers seamless trade-in or sale to Carvana, an important source of higher margin vehicle inventory.

Carvana's financing operation is a machine. Integrating customer acquisition, credit underwriting, and vehicle inventory makes it possible to provide customers with their financing options before they even search for cars, so they know exactly what they can afford. This can be especially important for subprime borrowers who may go to a traditional dealer, get upsold, and find out at the end of the process that they do not qualify for the loan.

Carvana is best positioned to underwrite auto loans because it has the best visibility surrounding the vehicle's quality and customer credit attributes. Being able to underwrite ~80% of the cars it sells, which currently generates ~$2 billion of loans per quarter, and then securitize and sell those loans to investors within 60-90 days, is no easy task. Investors value the loans based on the quality of the loan originator's underwriting which can take years to build a reliable track record. Public filings show Carvana has done well in this regard with historic securitizations that perform better than other securities with similar risk profiles.

Frankly, it is somewhat of a business miracle that Carvana has built what it has in such a short period of time in an industry that has experienced little change for decades. However, getting to this point was hardly clear sailing, and the extremely dynamic post-COVID world truly tested the company.

In the H2'22 Investor Letter, I provided a chart showing Carvana's historic gross profits and operating costs.



Source: Company filings, Saga Partners

2022 showed a big divergence between operating costs and gross profits. Management built an infrastructure for unit volumes to grow ~30% in 2022. As used car industry conditions deteriorated, unit volumes *declined* 3% in 2022, resulting in substantial operating losses during the year. At the time, there were serious doubts surrounding Carvana's business model and whether they had the ability to service the debt taken on from the ADESA acquisition as the share price declined 99% from its highs.

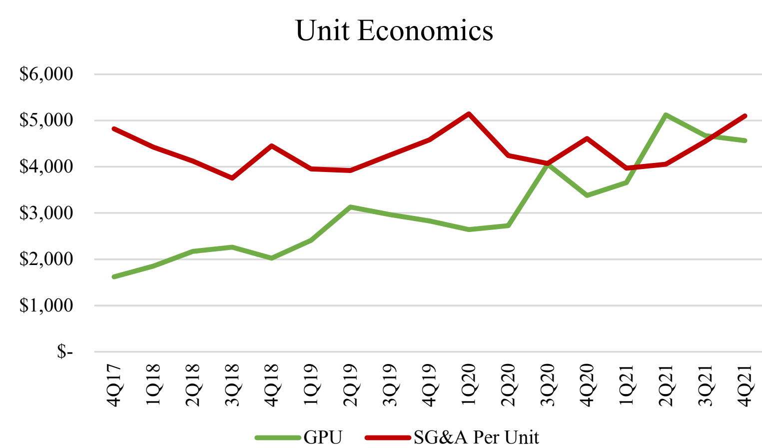
At the time, I made the argument that not only did Carvana have the ability to cut significant costs to better align with the revised unit volume outlook, but also had the liquidity to get there. The company had several levers to pull to ensure it could make it through an extended adverse environment. Those levers included: 1) attractive unit economics, and therefore the ability to cut significant costs to attain profitability at lower unit volumes, 2) ~$1.9 billion in committed liquidity to provide the runway to cut costs, and 3) ~$2 billion in unpledged real estate to ensure Carvana get through an extended downturn.

1) What supported the thesis that Carvana had attractive unit economics and could become profitable when it was reporting losses?

The initial analysis relied on understanding the fixed and variable nature of Carvana's cost structure as unit volumes changed. Management provided color surrounding these items historically, stressing their focus on reducing variable costs through automation, customer self-service, and integration. One can then perform their own bottom-up analysis to test the assumptions and their validity. I estimated that in-sourcing its critical services (long-haul transportation, reconditioning, storage costs, and local delivery) through integration as opposed to using third-party vendors, lowered variable costs per unit by ~$1,300-$2,500 compared to outsourcing, which provides a cost advantage for integration.

This cost advantage was not perfectly obvious on a company-wide level because Carvana was expanding its infrastructure and total costs. However, operating leverage was becoming more evident in older geographic market cohorts. By 2021, the five oldest cohorts reached positive EBITDA and two cohorts had EBITDA margins greater than 4%. That suggested that as markets reach a certain scale, they can leverage their operating costs over a greater volume of units to increase profitability.

Carvana in aggregate reached positive EBITDA during Q2'21 and Q3'21. This was when unit volumes were growing substantially, and the company was experiencing operational constraints. Carvana incurred elevated costs as it utilized third-party services to help meet the post-COVID surge in demand. In 2021, units grew 74% and reconditioning capacity expanded by 30% with the launch of forty-five new markets and three new IRCs. This is reflected with selling, general, & administrative costs (SG&A) expense per unit remaining fairly flat over time while gross profit per unit (GPU) increased.



Source: Company filings, Saga Partners

We also saw a live case study, albeit a short one, of Carvana's ability to scale fixed costs per retail unit if it wanted to. During heightened uncertainty following the onset of the pandemic, management froze corporate hiring. In the Q2'20 Carvana Shareholder Letter, unit volumes and SG&A were broken down by month. When unit volumes unexpectedly recovered in May and June, total SG&A (excluding Advertising and D&A) remained stable. SG&A per unit declined substantially during the quarter, falling from $3,760 in April to $2,593 per unit in June. The fact that incremental unit volumes had SG&A per unit of $625 in May and $360 in June suggested there was substantial room for SG&A to scale if management were optimizing for profitability.

	April	May	June	Q2 2020
SG&A (ex. Advertising, D&A)	$50,940,480	$55,550,565	$53,485,811	$159,976,856
Retail Units	13,548	20,923	20,627	55,098
SG&A / Unit	$3,760	$2,655	$2,593	$2,903
Additional SG&A vs. April		$4,610,085	$2,545,331	
Additional Units vs. April		7,375	7,079	
SG&A per Additional Unit		**$625**	**$360**	

Source: Carvana's Q2'20 Shareholder Letter, Saga Partners

When the unit economics diverged during 2022, one had to assess if the company was able to cut expenses to match a lower demand outlook. Management provided an operating plan to reach mid-term targets for SG&A per unit. One could bridge the 2022 results to Q2'21, to determine if Carvana could reach the $3,200 to $3,400 SG&A per retail unit midterm goal or $2,900-$,3100 on a cash basis (SG&A excluding depreciation and stock-based compensation).

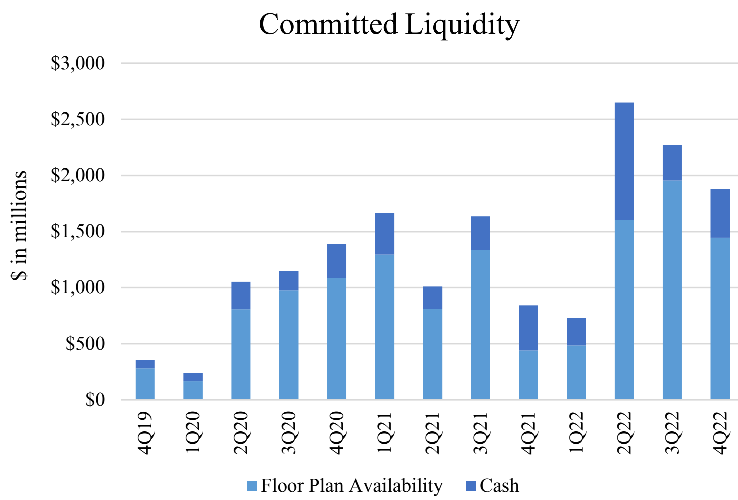
As the post-COVID snapshot in Q2'20 showed, it was possible that if optimizing for efficiency, as opposed to growth, costs per unit would not only return to 2021 levels but should improve upon them, resulting in lower costs per unit at certain unit volumes.

	FY 2021	Q2 2021	Best Quarter by Component*	Midterm Goal
Compensation and Benefits	$1,569	$1,373	$1,231	~$1,050 - $1,150
Advertising	$1,126	$1,104	$1,011	~$800
Market Occupancy	$165	$139	$107	~$100
Logistics	$348	$315	$281	~$200
Other (Sum)	$1,573	$1,428	$1,261	~$1,050 - $1,150
Total SG&A	$4,780	$4,359	$3,891	~$3,200 - $3,400
Depreciation and amortization	$249	$223	$202	~250
Stock-based compensation	$91	$83	$83	~$50
SG&A ex D&A and SBC	$4,440	$4,053	$3,606	~$2,900 - $3,100

Source: Carvana Operating Plan

2) Did Carvana have the liquidity runway to reach positive cash flow?

At the end of 2022, Carvana had $1.9 billion in committed liquidity that included cash and floor plan availability collateralized by vehicle inventory. There was also $2 billion in unpledged real estate that could be used in some fashion to help bridge the gap between cutting expenses and getting to positive free cash flow.



Source: Carvana Operating Plan

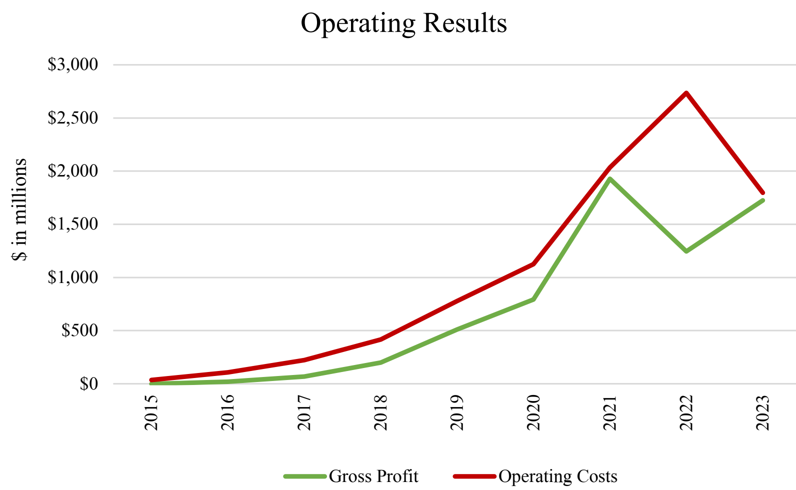
I typically pay little attention to sell-side research reports, but as Carvana's stock crashed through the end of 2022 and everyone seemed to be screaming fire in the movie theater, I had to try and understand if Wall Street analysts were seeing something I was not.

As I read reports, there appeared to be clear misunderstandings in many of them surrounding floorplan liquidity, cash vs. non-cash expenses, and fixed vs. variable expenses. Several claimed that Carvana required a capital infusion or else it would run out of cash in just a few quarters. Part of the reasoning was they believed Ally would cancel Carvana's vehicle floor plan as though the vehicle inventory was worthless. Floor plans are a normal liquidity source for auto dealerships collateralized with real assets. Why would Ally cancel Carvana's floor plan, especially before they cancel other dealership floor plans, such as Vroom's, which was in an even more precarious financial position than Carvana? As a side note, Vroom recently shut down used car operations, liquidated its vehicle inventory, and paid off its Ally floor plan in full. It was arguments like these that helped feed into the panic surrounding Carvana last year.

One must consider the risks and potential scenarios when a company has a material amount of debt and is experiencing operating losses. However, it appeared many of the bearish takes simply extrapolated losses incurred during an extremely adverse environment far into the future, stating if the company did not do anything then they would go bankrupt. It was as if everyone believed that the perfect storm of events that led to the operating losses during 2022 would last indefinitely despite management taking clear and decisive action to right size costs as they adjusted to the new environment. When modeling out liquidity surrounding various assumptions with SG&A, gross profit per unit, and unit volumes, it was difficult, at least in my understanding, to see how Carvana could run out of liquidity over the next two years, let alone the next few quarters.

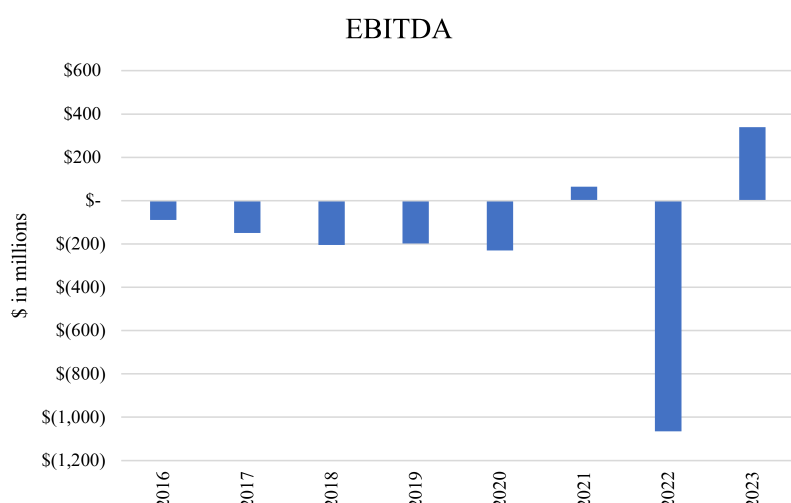
What happened in 2023?

Carvana flexed the economic strength of its business model. Over $1 billion in annual SG&A costs were cut while still being able to maintain customer service levels. Net promotor scores *increased* throughout 2023. Gross profit per unit reached all-time highs due to a combination of normalizing inventory levels relative to sales volumes (lower carrying and depreciation expense), sourcing more vehicle inventory from customers (lower vehicle cost), and decreasing non-vehicle variable costs through efficiency gains in reconditioning and inbound transportation. Profitability was also helped by things like limiting customer visibility on long-distance inventory, incentivizing customer pickups/drop-offs at vending machines, and increasing shipping fees for longer deliveries. Financing GPU also started to benefit from lower spreads on the loans Carvana sells (the lower the spread investors require on the securitization yields, the bigger the gain on loan sales for Carvana).



Source: Company filings, Saga Partners

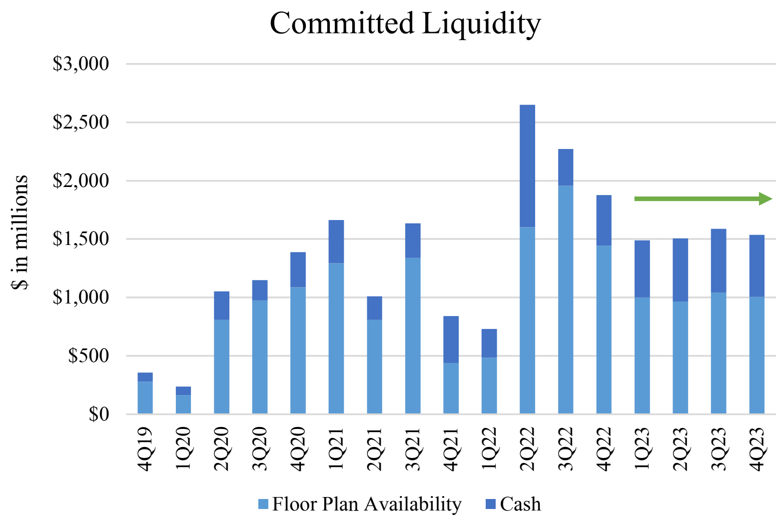
In summary, cost cuts were achieved faster than expected and higher gross profit per unit resulted in $340 million in EBITDA. These results occurred while industry-wide used car volumes remained depressed, car affordability remained near historic lows, and interest rates remained at multi-decade highs. They were also achieved while carrying the fixed overhead costs of 1.3-million-unit reconditioning capacity while selling 313,000 retail units in 2023.



Source: Company filings, Saga Partners

Carvana also refinanced its debt in September, which extended its note maturities, decreased cash interest payments over the next two years, and allows for early retirement of the notes. In exchange, the notes were collateralized with Carvana and ADESA assets and $350 million in equity was issued to retire some of the existing notes, resulting in 4% dilution.

As operations have generated positive free cash flow during the last three quarters of 2023, committed liquidity remained ~$1.5 billion. Liquidity benefitted from lower cash interest payments following the September debt refinancing. Carvana has the option to call the 2028 notes in one year, 2030 notes in two years, and 2031 notes in five years. I expect Carvana will either call the notes by either tapping its liquidity, issuing equity depending on the share price at the time, or potentially refinancing if interest rates decline.



Source: Company filings, Saga Partners

Results during 2023 answered the question whether Carvana can provide its unmatched customer value proposition…profitably. While the market no longer questions the viability of Carvana's business model, the question is now how profitable the company can be. Can Carvana maintain its unit economic profile while growing?

Carvana has a business model that as it scales, its becomes a better product and a better business simultaneously. More inventory results in more selection and shorter delivery times, and therefore higher conversion rates and sales. More sales feed back into more inventory and leverage fixed costs, which increase profitability per unit. The fact that Carvana was experiencing the reverse of this flywheel during 2023, incurred the costs to maintain excess reconditioning capacity, and still reached profitability reflects the strength Carvana's business model.

Last November, management provided a detailed breakdown of Carvana's cost structure. As Carvana starts growing again it will require increasing inventory levels, logistical costs, and running more shifts at reconditioning centers. Those costs are accounted for in gross profit per unit and Carvana is operating far more efficiently than they ever have before, with lower variable costs.

Below is a table I shared at Saga Partner's 2023 Annual Meeting that is based on Carvana's variable and fixed costs. GPU of $5,500 reflects the progress made to lower variable cost of goods sold through efficiencies. There may be a decline in GPU as Carvana transitions back into growth mode. For example, they may lower prices on inventory, acquire customer sourced inventory at higher prices, lower transportation fees, offer lower interest rates on financing, or other growth levers. I expect those levers that increase value for customers will be offset by continued efficiency gains with inbound logistic and reconditioning costs, further improvements in Wholesale and Other/Financing GPU, and normalize in the ~$5,500 range over time.

SG&A per unit remains elevated at current unit volumes and will scale as fixed costs are leveraged over more units. Carvana's existing fulfillment infrastructure can handle more than 3x its current retail unit volume. That suggests that when unit volumes reach 1 million units, overhead expense per unit alone would decrease by ~$1,000. Advertising expenses in aggregate will increase as Carvana reaccelerates growth but advertising per unit should trend down as experienced in older cohorts.

One can make different assumptions about how gross profit per unit and SG&A per unit change alongside units volumes. I estimate that EBITDA per unit should be in the $2,500 to $3,000 range at scale.

Units	GPU	SG&A Per Unit	EBITDA Per Unit	EBITDA (000s)
300,000	$5,500	$5,000	$500	$150,000
500,000	$5,500	$3,750	$1,750	$875,000
750,000	$5,500	$3,500	$2,000	$1,500,000
1,000,000	$5,500	$3,000	$2,500	$2,500,000
2,000,000	$5,500	$2,500	$3,000	$6,000,000
3,000,000	$5,500	$2,500	$3,000	$9,000,000

Source: Company filings, Saga Partners

While several years away, three million units at $2,500-$3,000 EBITDA per unit would provide $7.5-$9.0 billion in annual EBITDA. Less interest expense (dependent on the leverage and interest rates at the time), taxes, and maintenance capital expenditures, then free cash flow would be substantial. Even at that unit volume, it would only provide Carvana with a single digit market share. While still leveraged, Carvana is clearly on the path towards significant cash generation. As volumes reach a certain level, the $5.4 billion in notes (assuming accrued PIK interest for two years) and $480 million in annual note cash interest expense become far less material.

Conclusion

For any other company to try to get to Carvana's cost structure and value proposition would require many more billions of dollars to just get started and must grow unit volumes to a scale that is hard to fathom. Vroom, the second largest e-commerce used car dealer after Carvana, announced they are discontinuing used car operations. They reached nearly 100,000 units per year following the pandemic before announcing last year that their less integrated business model was unsustainable. It resulted in a significant downsizing with unit volumes declining to 18,000 in 2023. Even incumbents like CarMax and Lithia Motors would take years of self-funding to build equivalent infrastructure. That is extremely difficult to do when they have public shareholders that expect GAAP profits, and their business models are reliant on expensive salespeople and real estate. I suspect they will continue to try to utilize their existing physical store footprint to provide an omnichannel customer experience but will be burdened by a higher operating cost structure as Carvana continues to scale.

The used car market is a $1 trillion industry that sells ~40 million vehicles a year where market share is typically measured by fractions of a percent. Carvana is currently delivering more vehicles to customers than multiples of all other e-commerce vehicles sold combined. If Carvana continues to scale and there was no close competitor that could match its inventory selection, prices, reconditioning and next day delivery, and trusted brand, it seems reasonable that they would be able to continue to grow far past 3 million retail units. There are strong arguments to expect >15% of used car sales will be purely digital with time, and that Carvana will have the majority of that share.

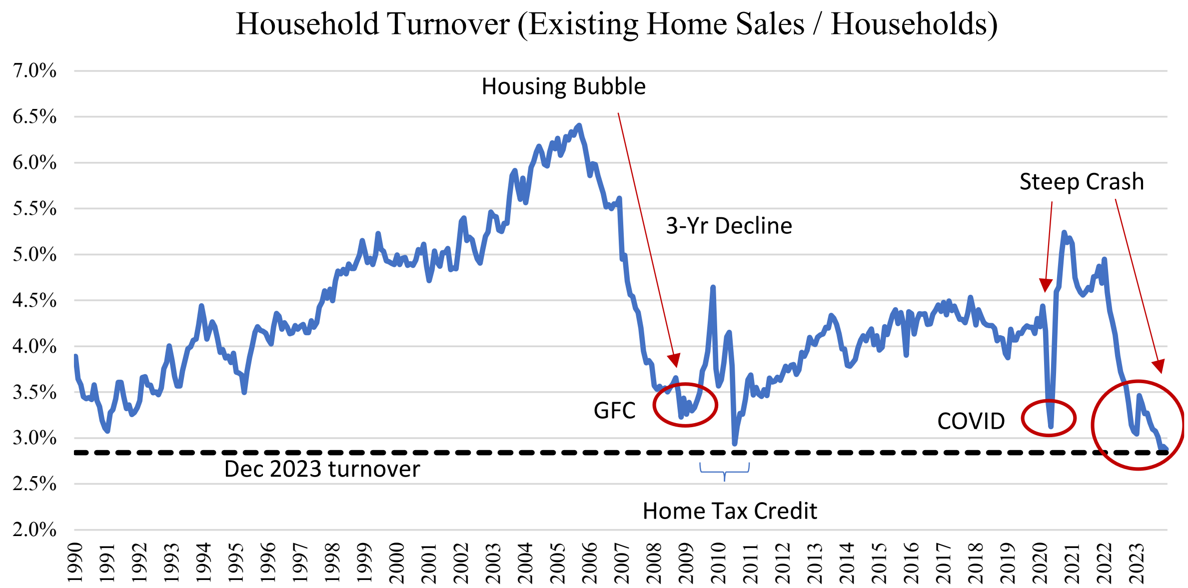
Owning a stock like Carvana during 2022 can test an investor's limits. Carvana was being painted with a broad brush. Some vocal short sellers speculated conspiracy theories and even suggested the company had malicious intent. A declining stock price was considered validation of Carvana's eventual demise. Any action Carvana took was interpreted in a negative light. The experience reminded me of the story I read about when Jack Byrne became CEO of GEICO in 1975 to help turn the insurer around. Byrne said, "GEICO was getting such bad press, that if he had walked across the Potomac River, the headlines would have screamed, 'Byrne Can't Swim.'"

Being able to decipher the difference between a Carvana and a Vroom is crucial and what actively picking stocks is all about. While the companies may have appeared to have similar business models on the surface, that was far from the case if one dug a little deeper. Yes, Carvana experienced worse than expected operating losses in 2022 and had a leveraged balance sheet following the ADESA acquisition, which resulted in very real risks surrounding its liquidity and capital structure. However, management was clear about its plan to cut costs and return to positive cash flow. Shares sold at prices as though bankruptcy was imminent when a casual look at the balance sheet suggested otherwise.

As Carvana sits today, it has shown that its business model is profitable. It has a nearly irreplicable footprint of real estate assets, reconditioning and logistics infrastructure, and process capabilities. The difficult used vehicle market and capital market has weakened or eliminated many of its potential competitors, therefore further extending the company's lead. Companies like Carvana are a once in a lifetime type investment. Even after shares have recovered quite a bit following 2022's lows, they continue to sell for a fraction of what I expect them to be worth many years from now.

Appendix B - Redfin

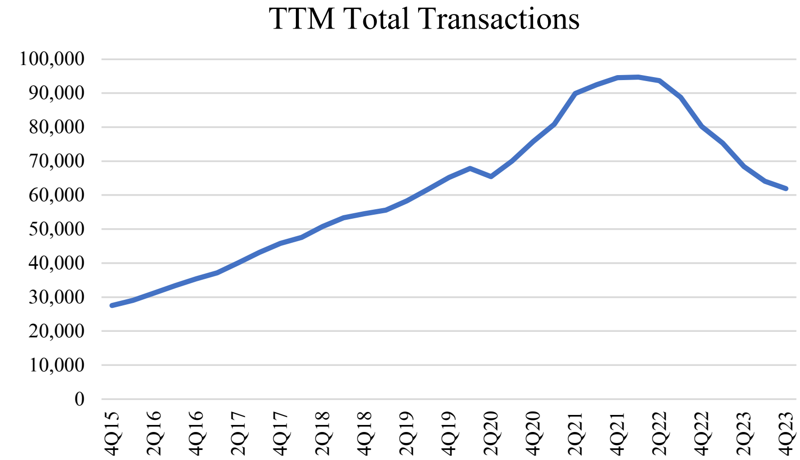
It is hard to express how challenging the market for existing home sales has been, but the chart below provides context. During 2022, existing home sales crashed with household turnover (existing homes sales / households) falling to lows reached during the Great Financial Crisis. During 2023, household turnover fell even further as home affordability remained at historic lows and households were locked into lower mortgage rates.



Source: FRED, National Association of Realtors, Saga Partners

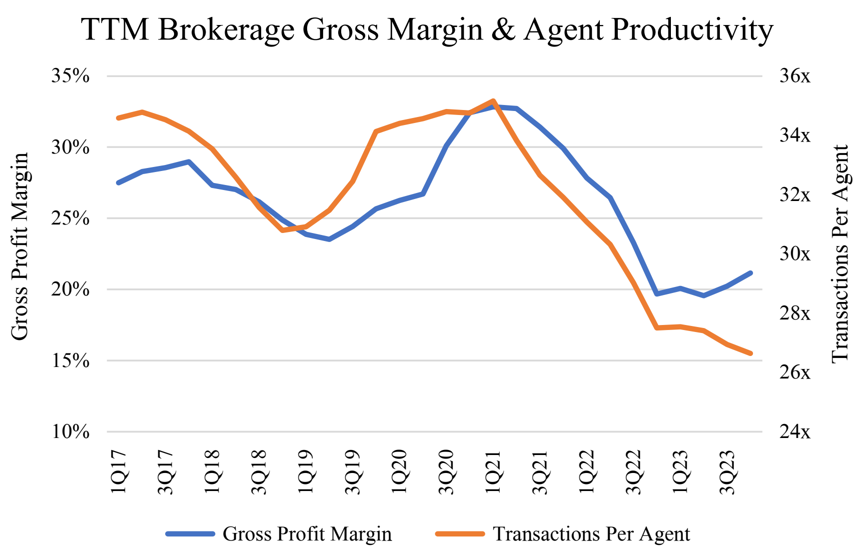
While results continued to lag what I expect the company to be capable of, Redfin made solid progress during 2023 while facing what have been some of the worst macro conditions that the industry has ever faced. Beyond the real estate market, there have been two major developments that I expect will benefit Redfin's prospects. The first is Redfin Next, which is a change in how agents are incentivized and compensated. The second is the National Association of Realtors (NAR) settlement that will have an impact on the entire real estate industry. Before diving into those developments, I thought it would be helpful to review Redfin's results over the past few years, where they are today, and then explain how they are positioned for the future.

Prior to 2021, Redfin consistently grew transaction volumes more than double digits as it expanded across the country. When existing home sales crashed in 2022, Redfin's trailing twelve-month (TTM) transactions started to decline.



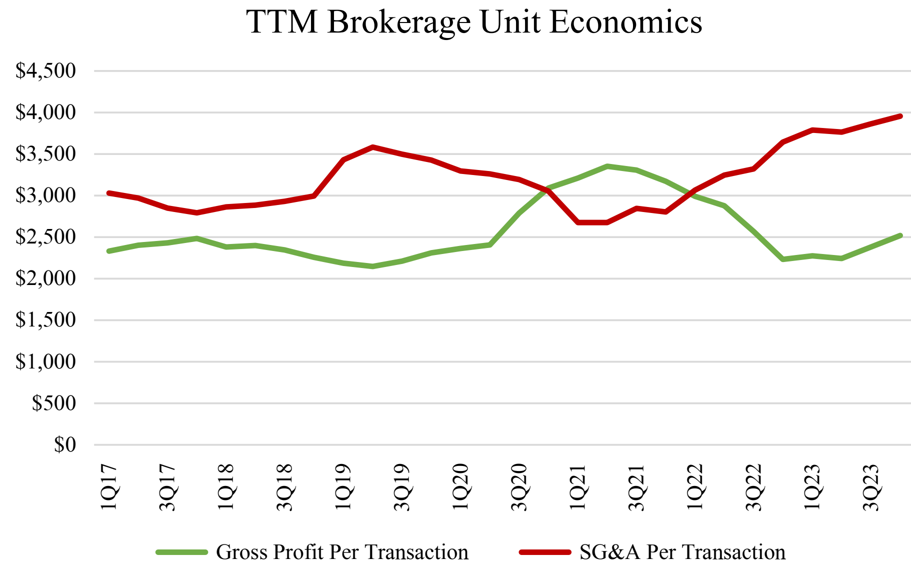
Note: Total transactions include both Brokerage transactions and Partner transactions
Source: Company filings, Saga Partners

The other large real estate brokerages also experienced similar declines, however Redfin's gross profit margins declined to a greater extent because a greater portion of the cost of goods sold is fixed due to a higher paying a higher agent salary and benefits. As annual transactions per agent declined from 32 transactions in 2021 to 27 transactions in 2023, brokerage gross profit margins declined from 30% to ~20%.



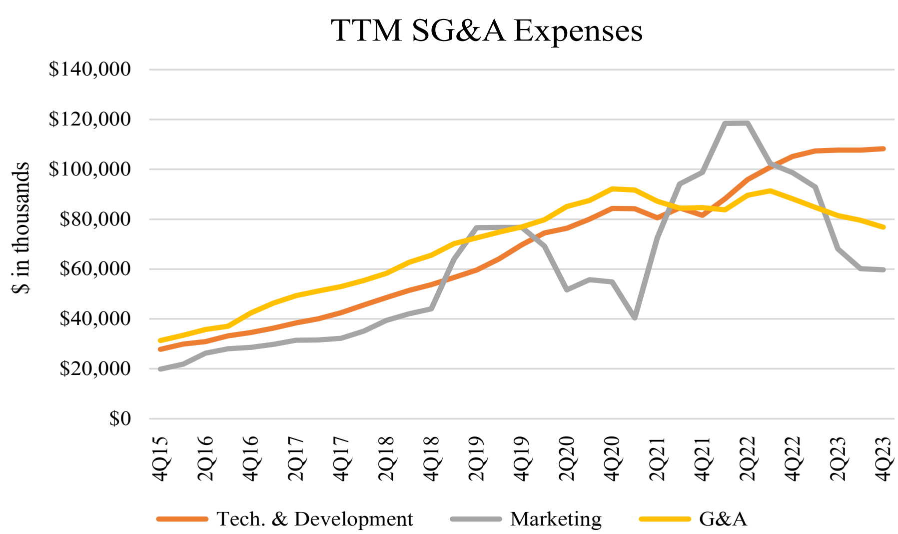
Note: Redfin reports Brokerage gross profits under Real Estate Services segment which includes both Brokerage gross profits (transactions closed with Redfin agents) and Partner gross profits (transactions closed with Partner agents). Assuming Partner transactions have an 85% gross profit margin provides Brokerage gross profit margin for transactions closed with a Redfin agent.
Source: Company filings, Saga Partners

In response to declining gross profits, Redfin pursued cost cutting measures in selling, general, and administrative (SG&A) expenses. While total Real Estate Services SG&A declined ~$50 million in 2023, on a per transaction basis SG&A remained elevated.



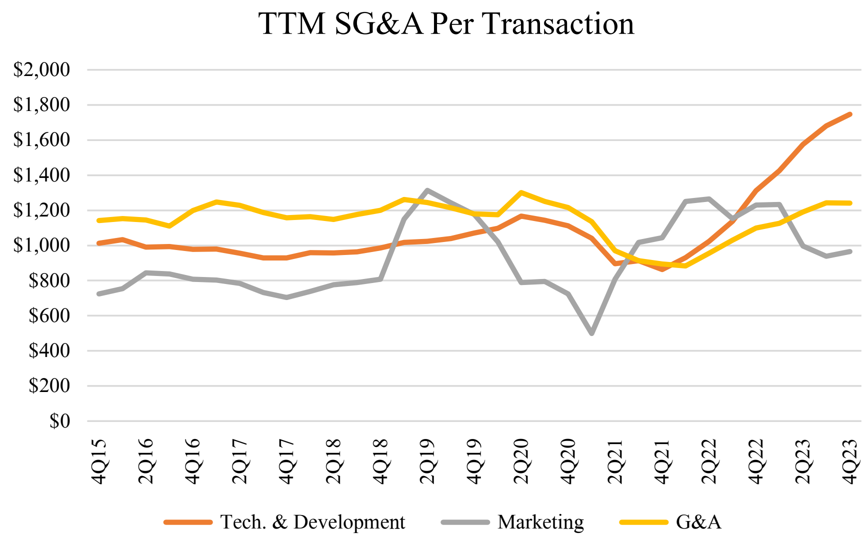
Source: Company filings, Saga Partners

Below are the trailing twelve-month Real Estate Services SG&A expenses. Marketing and General & Administrative (G&A) costs have declined in 2023. Technology & Development (T&D) costs have remained flat as they are more fixed in nature, consist of building and maintaining the website and mobile application and software development.



Note: Redfin provided segment results (Real Estate Services, Rentals, Mortgage, Other, Corporate) from 2021 to present. Total SG&A costs were considered Real Estate for 2020 and earlier periods.
Source: Company filings, Saga Partners

Marketing and G&A were in line with their historical cost per transaction. Since Technology & Development costs are more fixed, they were elevated on a per transaction basis during 2023.



Source: Company filings, Saga Partners

Management believes further expense cuts are possible to get the brokerage segment to profitability if existing home sales remain depressed. However, they do not plan on making any more major cuts because they expect other initiatives will improve customer conversion/close rates and therefore gross profit per transaction to get the brokerage segment to profitability. By not cutting additional expenses they will be better prepared for when the market eventually recovers.

With that background, it gets me to the first major development called Redfin Next, which is a change in how Redfin incentivizes and compensates agents by replacing agent base salaries with higher commissions.

1) Redfin Next

Redfin's core mission has been to improve the real estate transaction for customers. It started as a portal connecting the ~700 multiple listing services (MLS) across the country. Rather than attempt to quickly monetize its traffic through selling advertisements, it tried to save customers money by enabling homebuyers to send offers to listing agents through its website without the help of a buyer's agent. Those initial efforts were unsuccessful because Redfin did not control the listings. Traditional listing agents preferred maintaining industry practices and were not willing to accept digital offers.

In a 2019 blog post, Redfin's CEO, Glenn Kelman, explained why selling direct to homebuyers did not work. "The problem was that we didn't get to decide how a home would be toured or bought when it wasn't listed by Redfin, and we didn't have the staff to get homebuyers into listings, nor the data to tell them what it would take to win." Redfin realized that in order to improve the real estate transaction, it had to control the listing by becoming a full-fledged brokerage.

Historically it has been difficult for a real estate brokerage to differentiate. Brokerages have similar access to the supply of homes through the MLS system, their agents charge similar commission rates resulting from the structure imposed by the MLS (more on this in the NAR settlement section below), they have a similar business model that hires agents as contractors with a revenue split, and they utilize similar marketing channels and software systems. There are few if any economies of scale which enable the smallest brokerages to compete effectively with the largest ones resulting in a highly fragmented industry.

There is a structural issue across the industry because commissions have been fixed at 2.5%-3.0% and customers have been fairly insensitive to prices they pay for an agent's services. The traditional brokerage business model is focused on attracting as many agents as possible. Any attempt by a brokerage to lower the prices charged results in lower income for agents (and the brokerage), therefore an unattractive value proposition for agents, all else equal.

Because there was no real possibility of disintermediating the agent (at least at this point in the industry's life), and Redfin was determined to offer customers a better deal by charging lower commissions, they had to offer agents relatively attractive compensation. In order to pay attractive compensation but charge lower prices, Redfin had to make agents more productive. The company did this by sourcing customer demand through its web portal so that agents did not have to spend nearly as much time prospecting for demand.

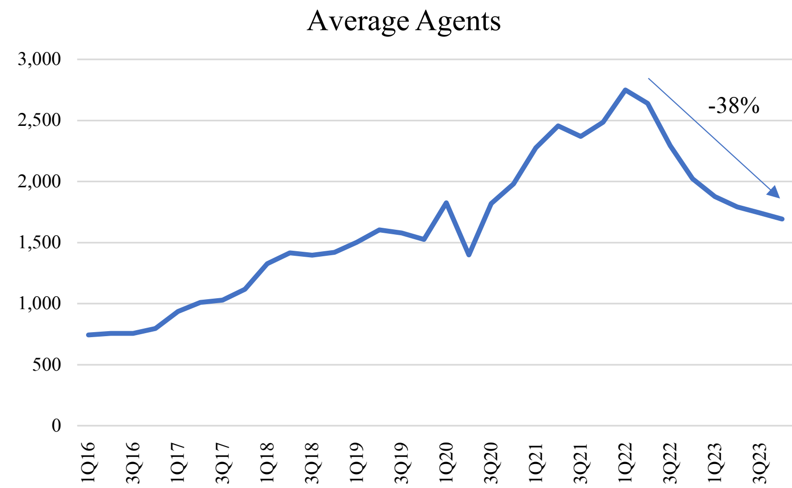
In 2023, the average Redfin agent closed over three times more transactions than the next most productive brokerage and did over two times the sales volume. Redfin requires far fewer agents to do significantly more business than the other top ten real estate brokerages.

Brokerage	Transactions Per Agent	2023 Sales Volume Per Agent ($ thousands)	Agents
Redfin	**27x**	**$16,251**	**1,692**
Hanna Holdings	8x	$2,719	12,445
Compass	7x	$7,025	26,257
@Properties	7x	$4,311	5,245
HomeServices of America	6x	$3,243	41,265
eXp Realty	5x	$1,939	74,029
Anywhere Advisors	4x	$3,092	57,000
The Real Brokerage	4x	$1,737	12,207
Douglas Elliman	3x	$5,209	6,605
HomeSmart	2x	$1,108	16,697

Source: RealTrends, Saga Partners

To attract agents and be able to charge lower commissions, Redfin offered a minimum base income and benefits, but agents would earn a lower split of the commission on each transaction. In this structure, Redfin incurs more fixed costs in the cost of goods sold than traditional brokerages. That means as agents become more productive that Redfin benefits more, but it incurs more costs for less productive agents.

Historically agent count grew at a moderate rate since Redfin was cautious about growing agent count too fast as they could potentially get caught in a downturn with high fixed costs. However, during the extreme volatility of the housing market following COVID, Redfin continued to find itself a step behind, such as when the market crashed in March 2020, boomed in H2’20 and throughout 2021, and then crashed in 2022 resulting in agent layoffs during 2022.



Source: Company filings, Saga Partners

In response to the extreme volatility in existing home sales, and as a way to attract higher performing agents, Redfin developed a new agent compensation structure called Redfin Next, which will enable Redfin to scale and gain market share at an increasing rate going forward.

Redfin Next changes how agents are incentivized and compensated, offering agents the best of both worlds, attractive splits and access to Redfin-sourced demand. Next agents earn 75%/25% commission splits on self-sourced demand and 40%/60% splits on Redfin-sourced demand. Agents are still hired as employees with benefits, but compensation is fully variable. Agents get team-based support services called “business in a box” which includes providing transaction coordinators, touring services, and covering professional fees, mileage, and marketing costs, and helps agents with their biggest challenge, customer acquisition.

The two charts below show the changes in cost structure between the Old Agent Compensation Model and the Next Agent Model as costs scale over transaction volumes per agent. The Old Agent Model was profitable for Redfin with seven transactions. At $12,000 revenue per transaction and $2,500 bonus per transaction, provides $66,500 in fixed costs per agent.

	Old Agent Compensation Model						
Per Agent							
Revenue Per Transaction	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
Transactions Per Agent	4x	7x	10x	20x	30x	40x	50x
Revenue Per Agent	$48,000	$84,000	$120,000	$240,000	$360,000	$480,000	$600,000
Variable Agent Commission	10,000	17,500	25,000	50,000	75,000	100,000	125,000
Fixed Costs in COGS	66,500	66,500	66,500	66,500	66,500	66,500	66,500
Gross Profit Per Agent	(28,500)	-	28,500	123,500	218,500	313,500	408,500
Per Transaction							
Revenue Per Transaction	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
Variable Agent Commission	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Fixed Costs in COGS	16,625	9,500	6,650	3,325	2,217	1,663	1,330
Gross Profit Per Transaction	($7,125)	$0	$2,850	$6,175	$7,283	$7,838	$8,170

Source: Company filings, Saga Partners

The Next Agent Model is profitable with only four Redfin-sourced transactions. At a $12,000 revenue per transaction, a 40% split provides $4,800 in agent commission, and $28,800 in fixed costs per agent.

	Next Agent Model						
Per Agent							
Revenue Per Transaction	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
Transactions Per Agent	4x	7x	10x	20x	30x	40x	50x
Revenue Per Agent	$48,000	$84,000	$120,000	$240,000	$360,000	$480,000	$600,000
Variable Agent Commission	19,200	33,600	48,000	96,000	144,000	192,000	240,000
Fixed Costs in COGS	28,800	28,800	28,800	28,800	28,800	28,800	28,800
Gross Profit Per Agent	-	21,600	43,200	115,200	187,200	259,200	331,200
Per Transaction							
Revenue Per Transaction	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
Variable Agent Commission	4,800	4,800	4,800	4,800	4,800	4,800	4,800
Fixed Costs in COGS	7,200	4,114	2,880	1,440	960	720	576
Gross Profit Per Transaction	$0	$3,086	$4,320	$5,760	$6,240	$6,480	$6,624

Source: Company filings, Saga Partners

The big takeaway is that the Next Agent Model is more variable with agents income directly tied to how many transactions they close. Redfin is giving agents more potential upside but reducing Redfin's downside by lowering fixed costs per agent. Fixed costs per agent are lowered from $66,500 to $28,800, or a total of ~$38,000 per agent. If all ~1,700 Redfin agents at the end of 2023 became Next agents, it would effectively remove ~$64 million in fixed costs.

Redfin Next provides agents with the unlimited upside for top producing agents, yet limits Redfin's downside risk for underperforming agents, and therefore makes it possible for Redfin to scale agent count while reducing the cyclical risk of its business model. An analogy for Redfin Next would be if Uber provides everything to be a driver such as the car, registration, payments, and covers other operating fees. Then the driver has the option to either search for self-sourced demand by driving around looking for passengers to wave them down or drivers can access Uber-sourced demand through the app.

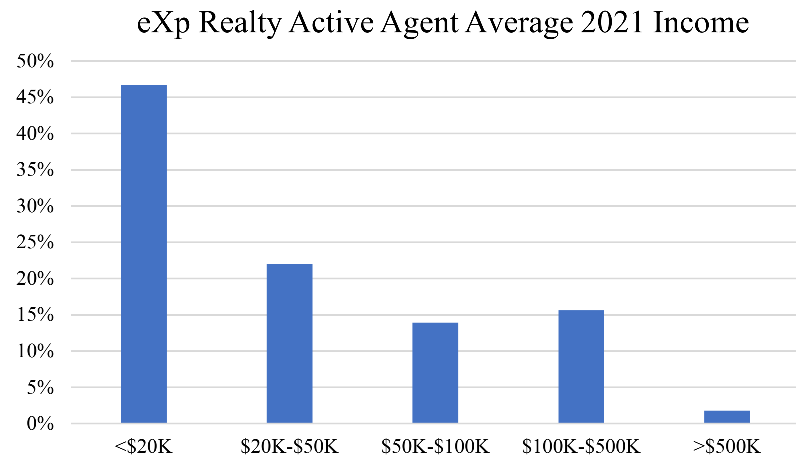
The question now becomes less about agent productivity, although still important when it comes to Redfin's ultimate profitability, and more about how fast Redfin Next agent count will grow. Based on the above Next Agent Model, if Redfin had 10,000 Next agents closing ten Redfin-sourced transactions per year (~1% transaction market share), it would generate over $400 million in brokerage gross profits. At twenty transactions per year, it would generate $1.2 billion in gross profits (~2% transaction market share). This compares to the $245 million in Real Estate Services segment SG&A during 2023. The financial results will depend on 1) the number Redfin Next agents, and 2) the volume and mix of self-sourced and Redfin-sourced transactions they close per year.

Redfin Next may appear like the more traditional real estate brokerage model where the primary focus has been to attract as many agents as possible by offering attractive splits. The difference between Redfin's model and traditional brokerages is that Redfin is offering traditional industry splits, support services, *and* access to Redfin-sourced demand. That portal empowers customers to have more control of the transaction and it enables agents to be more productive by giving them the tools they need, the demand they want, while earning industry standard splits. That is the power of Redfin's portal which no other brokerage can match.

The fact of the matter is if Redfin wants to disrupt the real estate industry, they must be able to scale agent count substantially. Only after gaining enough listing market share will Redfin be able to more directly connect home sellers and homebuyers through various solutions. At least for the intermediate future, most transactions will have to be done through agents, and growing agent count is a matter of providing an attractive value proposition for agents.

eXp Realty has been successful attracting agents by offering an 80%/20% split and revenue share and stock-based compensation for agents that recruit more agents. Over the last five years they grew active U.S. agent count from ~1,000 in 2015 to over 70,000 at the end of 2023. However, brokerages like eXp Realty may offer attractive splits but not necessarily the tools to help agents close transactions.

In 2021, eXp Realty disclosed the distribution of income among their active agents with more than one year of tenure. Nearly half of agents made less than $20,000 and the median agent was paid between $20,000-$50,000. In comparison the median take home pay for a Redfin agent was over $100,000 in 2023, with Redfin covering the agent's other business expenses, benefits, mileage, payroll taxes, and listing expenses.



Source: eXp Realty, Saga Partners

The hesitation that agents may have in deciding to become a Next agent is they will charge Redfin's lower commissions than if they stayed at a traditional brokerage. However, most other brokerages do not provide the same infrastructure and access to high-quality leads to enable agents to close more transactions. Additionally, there are changes happening in the real estate industry that may end practices that have helped keep commissions fixed at 2.5%-3.0%. If all other brokerages and agents begin to face more price sensitive customers, it will not only make Redfin's value proposition more attractive for the end customers but also more attractive for agents, which brings me to the National Association of Realtors (NAR) settlement.

2) National Association of Realtors settlement

Unlike other highly fragmented transaction-based industries, real estate technology companies have not been successful lowering agent commissions let alone disintermediating agents altogether. What makes real estate different is the presence of two intermediaries as opposed to one (a listing agent and a buyer's agent) who are incentivized to only work with the other intermediary. Uber and Airbnb were able to create huge platforms very quickly because the parties most interested in the economics of the transaction directly interacted with no intermediary representation. Even as portals like Zillow and Redfin have emerged as the consumer preference for viewing properties, real estate agents that are members of their local MLS requirements.

The reason the 2.5%-3.0% agent commissions are standard across the industry goes back to the MLS system where the NAR establishes most its guidelines. MLS' are where properties for sale are listed. Historically, if one wanted access to the MLS system, either to search listings or to list their home where demand would find it, they had to hire an agent that works for a brokerage that is a member of the MLS. As part of the terms for membership, the MLS historically required brokerages to bundle the buyer's agent commission with the seller's agent commission. The home seller "pays" the total 5%-6% commission, with 2.5%-3.0% of it going towards the buyside agents after the transaction closes.

It is possible for homeowners to sell their home for sale by owner (FSBO) or for a home buyer to purchase a home without a buyer's agent, but they face numerous challenges. For sellers, even if the local MLS allowed FSBO listings for a fee, buyer's agents actively "steer" their clients away from those listings. This is why only ~10% of home sales are FSBO and of those homes ~50% of the sellers personally knew the buyer of their home.

For homebuyers, they are told that they might as well use the services of an agent because the home seller is the one that pays the buyer's agent commission. Realtor.com's website even states, "home buyers don't need to worry about the expense of hiring a buyer's agent because the seller pays the commission for both the seller's and buyer's agents." Where else does the money come from other than the buyer? Additionally, on a listing that gets multiple offers, a buyer that is not represented by an agent has little chance of having their offer accepted because listing agents do not want to work directly with homebuyers. For these reasons, agents have remained an immovable intermediary and customers have been fairly insensitive to the 2.5%-3.0% commissions that agents charge, despite the best efforts of Redfin.

There have been numerous lawsuits going back several years that challenge the requirement of the seller to offer a broker commission to list their home. Notably last October a Missouri jury ruled in a Federal class action lawsuit that the NAR and major brokerages conspired to inflate commissions resulting in a $1.8 billion in damages. In response to the lawsuit, the NAR changed its long-standing requirement that the seller must offer some compensation to the buyer's agent. In March, the NAR entered a settlement with a wide range of class-action lawsuits brought by home sellers. They agreed to eliminate the MLS field that states the buyer agent's commission rate in an effort to prevent buyer's agents steering customers away from listings with lower buyer commission rates. The settlement does not stop home sellers from bundling the buyer's commission, but it potentially has made customers more aware and price sensitive to the commission they pay.

The Department of Justice does not think the NAR's settlement is going far enough. It is still fighting the NAR to completely decouple commissions by "prohibiting sellers and their broker from any involvement related to the compensation for a buyer's broker." There are still several moving parts in how everything plays out. I suspect it will take a full restriction on sellers being able to compensate buyer's agents to have a wide-ranging shift in how the real estate industry functions. At the very least, sellers no longer have to offer compensation to buyer's agents and customers appear to be somewhat more price sensitive to agent commissions.

In light of the NAR settlement and other lawsuits, real estate agents have received a lot of criticism. To be fair, agents can add a lot of value to an infrequent transaction that involves what is often a household's single most valuable asset. The backlash is more of a reflection that people feel as though they have been forced to hire an agent and pay a certain commission in order to successfully buy or sell a house. Should it really cost $30,000 in agent commissions to sell a $500,000 home? The answer is, perhaps, but people should have the option to pay lower fees if they want to take on some of the work of buying or selling a home themselves. A more free market where customers directly pay agents is what it would take for a similar industry shake-up that occurred in other transaction based industries such ride-sharing, short-term rentals, travel, e-commerce, or discount stock brokerages.

Conclusion

The ~5 million existing home sales a year, $400,000 median home price, and 5%-6% commissions provide ~$100 billion in commissions split between agents and their brokerages. If customers become more price sensitive, or at the most extreme, the buyer's agent commission is unbundled from the seller's, commission rates and even the use of an agent will decline.

In a more competitive world, traditional brokerages have a lot to lose while Redfin has a lot to gain. The more customers become empowered and price sensitive, the better it is for Redfin. Redfin's culture has been to try and find ways to charge customers lower fees while still offering a similar if not better service than traditional brokerages. Redfin already charges commissions that are far below industry standards. No other major brokerage has been motivated to lower commissions and most will resist lowering commissions at all costs. No other brokerage has a highly trafficked website which will only become more important as customers are empowered.

Customers will gravitate to the brokerages that offer lower commissions. Is it possible for traditional brokerages to match Redfin's 1% listing fee at their current agent productivity? As other traditional agents and brokerages respond by lowering their commissions, they will experience lower income. Some of the 1.6 million NAR registered agents will leave the industry since closing a few transactions a year at lower commissions will not be worth the effort. Agents will need to close more transactions to make a similar income and will increasingly care about sourcing demand. As agents face income pressure at traditional brokerages, it will make working as a Redfin Next agent even more attractive. Agents will be attracted to Redfin because that is where it is easiest for them to increase their earnings by getting access to high quality demand.

Not only has Redfin prepared for a lower commission world, it is also set up to succeed if buyer or listing agents become less common because customers do not want to pay agent commissions. Redfin is the platform that helps people exchange ownership in property. Customers will go to Redfin because it is the cheapest and most seamless way to transact. If home sellers want to accept direct offers from buyers, Redfin has a network of contractors that provide on demand property access. They also have self-service technology for buyers to set up their own tours and to make direct offers on a listing without a buyer's agent. If sellers want to list their property without an agent, they have the ability to showcase FSBO properties on the portal and provide the support services that sellers need. No other brokerage has these capabilities at scale.

The industry is at a point where anti-competitive practices may be coming to an end, empowering customers that are able to decide which services they want and how much they are willing to pay for them. At the same time Redfin has a new agent compensation model that makes it easier to scale its value proposition across the country. It is not perfectly clear how many agents will eventually move to Redfin and the eventual productivity and profitability of those agents. What seems clear is the new model's relative attractiveness for agents and therefore eventual growth in agents, market share, and profitability for Redfin. Redfin has the infrastructure to grow agent count to many times its current size and one can look at how fast Exp Realty grew agent count in recent years by simply offering attractive splits.

As customers look to Redfin as the best deal to buy and sell a home, and agents gravitate to Redfin as the best way to increase their income, Redfin will be able to grow its market share across the country. I expect Redfin's $750 million market cap will look like a steal considering initiatives to improve customer close rates and scale Redfin Next, let alone if existing home sales simply trend towards more normal levels over the next few years.

Appendix C – Roku

Roku made strong progress during 2023 by growing its userbase, engagement, and reaching positive adjusted EBITDA a year ahead of schedule. The market continues to question the strength of Roku's business model, valuing it as though it were a commoditized hardware company. That is understandable because Roku's growing strength in the TV value chain is not perfectly clear when only looking at its income statement.

Any computing platform that runs third party software applications must have an operating system (OS). Computer operating systems inherently have economies of scale and network effect dynamics. App developers do not want to rewrite their software for dozens of operating systems, and therefore focus resources on the ones with the largest userbase. Consumers gravitate to the operating system that has the best experience, which often means the one that has the most and best-performing apps.

Achieving scale ahead of others is crucial. Whoever gets the early start in attracting the most users, then attracts app developers, which creates a positive feedback loop. The strategy for gaining scale can be a combination of being cheaper, more accessible, or providing a better user experience; all of which will only provide a temporary advantage as competitors attempt to replicate the winner's strategy. What provides the more durable competitive advantage is the combination of economies of scale, network effect, and switching costs.

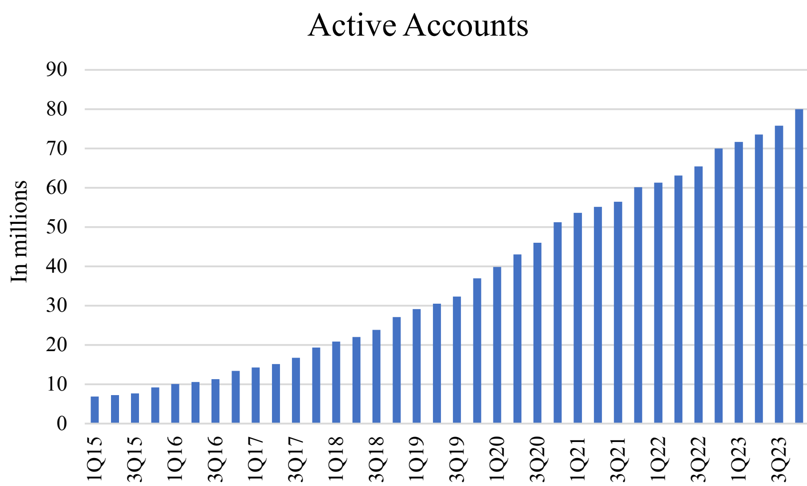
After IBM entered the personal computer market in the 1980s, it initially licensed its OS from Microsoft. IBM eventually realized the power of controlling the OS and wanted to challenge Microsoft in the early 1990s. Despite having vast resources that far exceeded Microsoft's at the time, it was too late. Microsoft Windows already had a large userbase, the most software applications, and computer hardware OEMs were hesitant to license a new OS. Microsoft already reached the tipping point in market share that was nearly impossible to displace. A similar dynamic happened with mobile phones. Once mobile phone computing power became powerful enough to run numerous third-party applications, Apple's iOS and then Google's Android emerged as the standardized interface that hardware and software were built upon.

TVs are currently going through that same evolution as they connect to the Internet and use third party software to distribute content. TV OEMs must decide to either build their own homegrown operating system or license one from a third-party. The trend has been that TV OEMs who licensed a third-party OS from one of the major OS companies (Roku, Amazon FireTV, and Google TV) have continued to gain market share from companies that have trying to build their own.

While an operating system is building scale, the company's earning potential may not be apparent. That is because the eventual winner should do everything in its power to gain adoption by investing all available resources in its operating system. There are numerous examples of past companies attempting to build a platform that appeared to have an early advantage but lost because they tried to monetize too soon. A company does need resources to reinvest in its business, therefore, it is a delicate balance between monetizing and investing. Eventually when a computing platform matures and an operating system establishes itself as one of, if not the only, winner at end state, it provides the winner with tremendous control of the ecosystem, and therefore strong earning power. A company like Apple generates far more cash from its mobile operating system business than it can reinvest, therefore it returns much of this cash to shareholders.

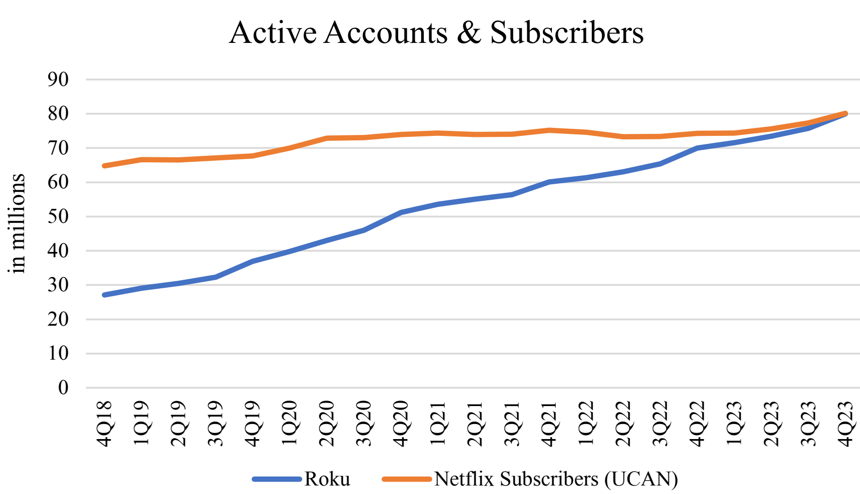
How is one supposed to evaluate an operating system's earning power when it is still far from maturity and GAAP earnings are depressed? Roku's strategy has always been to 1) scale active accounts, 2) grow engagement, and then only when reaching a certain market share in a geography, 3) monetize.

From a scale perspective, Roku has been executing exceedingly well. Roku reached eighty million active accounts at the end of 2023. An active account is considered a household which has ~2 people, so Roku has ~160+ million viewers. Since the start of COVID in Q1'20, Roku has added over forty million active accounts. That is more active accounts added in the last four years than its entire history as a company prior to 2020.



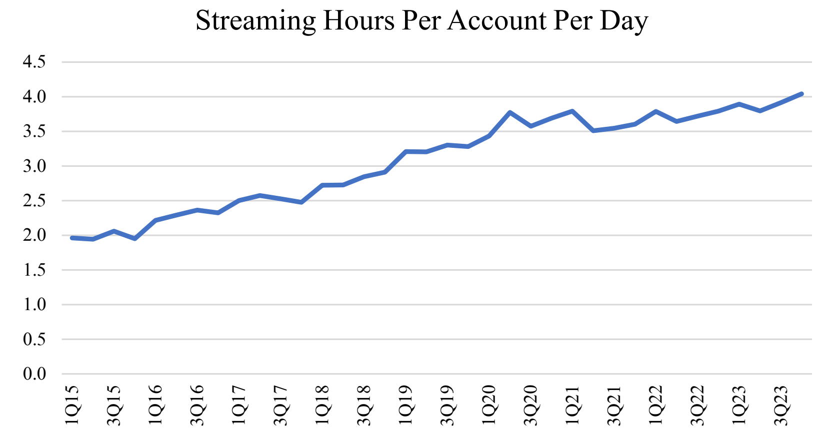
Source: Company filings

Active accounts include international, but it is estimated that Roku reaches nearly half of all U.S. broadband households, or more than sixty million active accounts. As a reference, Netflix is the largest streaming company with eighty million U.S. and Canada subscribers. Roku has by far become Netflix' single largest distributor in the and reaches nearly as many people as Netflix in the U.S.



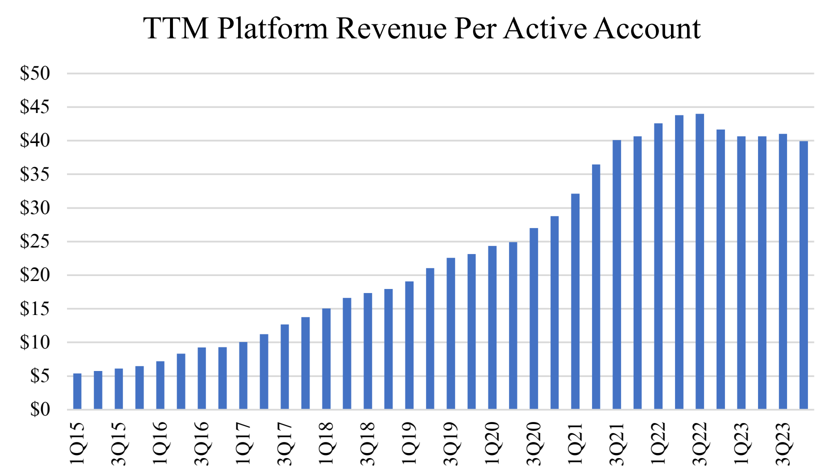
Source: Company filings

Roku's streaming hours per account per day has continued its positive trend, with the average active account watching over four hours a day on the Roku operating system.



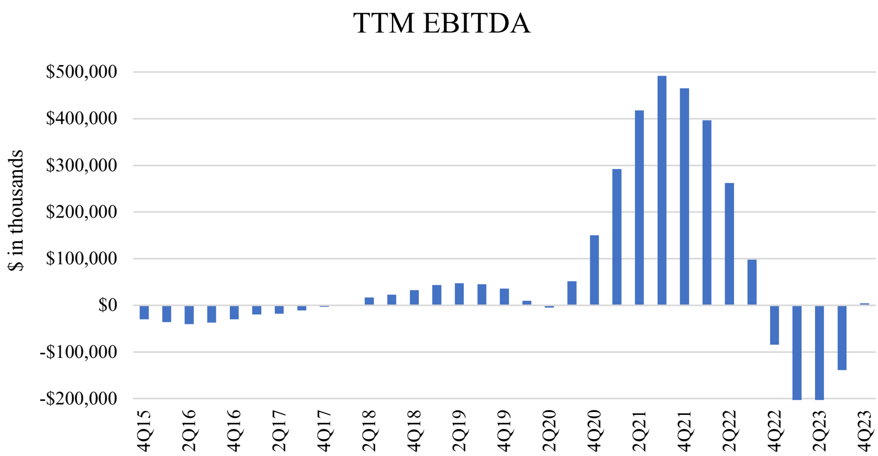
Source: Company filings

When Roku reaches a certain scale and engagement, it starts monetizing its platform through advertising. Trailing twelve-month platform revenue per active account (ARPU) was $40 in 2023. ARPU has been relatively flat over the last two years because 2021 experienced a surge of advertising dollars from streaming companies launching and trying to grow their subscription video on demand (SVOD) services. During 2022 and 2023 those companies pulled back spending. Roku has also been growing international accounts, which do not earn revenue to the same extent as U.S. accounts.



Source: Company filings

Historically, the business managed to cash flow breakeven, reinvesting all funds available to take advantage of the opportunity in front of them as fast as economically practical. When Roku experienced an unexpected growth in revenue in 2021, management accelerated investments in developing the platform and growth initiatives in 2022. As the advertising market deteriorated throughout the year, it resulted in EBITDA losses. In response, management established the goal to reach EBITDA profitability by 2024. Through expense cuts and a modest recovery in the advertising market, Roku was able to reach positive trailing twelve-month (TTM) EBITDA in 2023, a year ahead of plan.



Source: Company filings

The last few years have shown management's ability to control EBITDA with a modest time lag. If the business environment deteriorates unexpectedly, they can react as needed. While advertising dollars can fluctuate in the short term, the long-term trend is obvious. Advertisers eventually follow the eyeballs. Those eyeballs are shifting to connected TV, and Roku is the platform where increasingly more people get their streaming content.

Following Q4'23 results, management stated their plans to remain EBITDA positive but will once again begin to increase investments in platform development and growth. That is exactly what Roku should be doing given the upside of further establishing itself as a dominant TV operating system. Roku is by far the largest TV OS in the U.S., but the rest of the world is still largely up for grabs.

Consolidation Among TV Operating Systems

At this point in the industry's lifecycle, existing companies are battling to be one of the end-state winners. Based on streaming hours, Roku's market share is around 40%, Amazon Fire TV is between 15-20%, Google TV is between 5-10%, and Apple TV is in the 5% range. There are also TV OEMs that build their own operating system. Samsung has around 10-15% market share. LG and Vizio each have <5% market share.

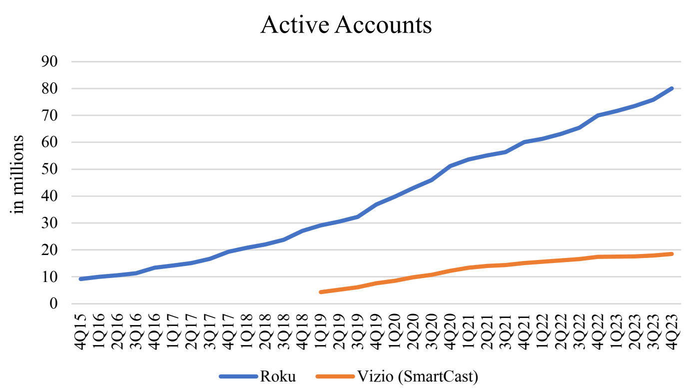
A potentially new TV OS has numerous hurdles to overcome to have any chance at success. It would have to offer some unique advantage or a compelling alternative that the existing TV OS's do not already have. The TV OS must already be integrated into each new TV purchased. Therefore, the new TV OS either manufactures its own TV or convinces TV OEMs to spend the resources to license and integrate the OS. Those OEMs would have to believe that retailers would be willing to give shelf space to the new TV over ones that are already established.

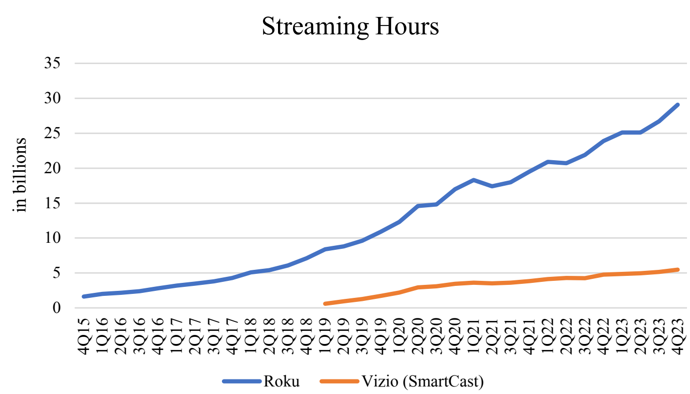
For customers to want to buy a TV with a new OS, it would either have to be cheaper or offer a better experience than the existing options available. Since TVs are already sold at such low margins, it is doubtful a new TV would be any cheaper than those already available. It is also doubtful the experience would be superior. A better experience would mean either more TV content, better tools to help navigate the growing amount of content available, or fewer technical glitches which existing OS's are already investing in.

The new OS would have to convince streaming companies to develop apps for their OS which currently would have few, if any, active accounts. The largest streaming companies like Netflix or Disney have the resources to test a new OS, but convincing smaller apps would be challenging. For example, Vizio is either the sixth largest TV OS in the U.S. and ESPN (owned by Disney) just launched its app on Vizio in September 2023 (more on Vizio later).

Trying to monetize the new OS with little scale would also be challenging. There is a similar symbiotic frenemy relationship between the streaming apps and the TV operating system that existed in the legacy cable TV business model between the cable networks and cable operators. How they split the advertising and subscription economics depended on each other's relative scale. Smaller OS's have less negotiating leverage with streaming companies and therefore get less share of the ad inventory and worse economics than larger OS's.

One example of the importance of scale is Vizio announcing that it is getting acquired by Walmart as it faced competitive challenges. Vizio's results show how it has continued to lose market share to Roku as the industry continues to consolidate around the larger TV OS's.





Source: Company filings, Saga Partners

Walmart has been a strong distribution partner for Roku and licenses the Roku OS for it private label Onn TV brand. Walmart entering the TV OS business will inevitably affect its relationship with Roku, I do not expect it to have a significant impact to Roku's active account growth. Even if Walmart were to limit Roku's shelf space, Vizio being acquired by a major retailer may open other distribution channels where Roku has had less shelf space historically such as in Target and Best Buy.

<u>Conclusion</u>

It is rare to find a company that has already established a strong position in an industry, with a long runway to grow, and is valued as though it will never grow again or generate material free cash flow. If one were to look out further into the future, eventually all TV will be streamed. That TV content will be distributed over an increasingly concentrated number of TV operating systems. Historically, the U.S. TV industry was ~$160 billion market split pretty evenly between advertising and subscriptions revenues. Digital platforms such as operating systems, app stores, and video game consoles typically take ~15%-30% of commercial activity over their platform. Assuming a $160 billion connected TV market suggests that the TV operating systems will be a $24-$48 billion market, potentially divided among three to five end-sate winners. This does not even consider the international TV market which is more than double the U.S. Those revenues have high gross margins and SG&A costs tend to leverage to low levels per unit as an operating system reaches scale. One can make assumptions surrounding what Roku's eventual market share, take rate, and ultimate profitability will be, but at its current 40% streaming hours market share, it does not require very aggressive assumptions to consider its $8 billion market cap very attractive.

While Roku must continue to execute to more firmly establish itself as one of the winning TV operating systems, it has already accomplished the difficult part of growing scale by gaining consumer adoption in the U.S. Roku has always faced large competitors with significant resources. By emerging as the dominant TV OS in the U.S., it has demonstrated its ability to execute with its position protected from its relative scale of active U.S. accounts. While I expect Roku to continue to grow its TV OS market share, for shares to provide an attractive return from current levels is almost a matter of waiting for increased monetization of its current active account platform as advertising dollars continue to shift from linear to connected television.

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