Understanding Netflix- The tech giant that everyone is watching

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Introduction

Investors love the big technology firms, the FAANGs (Facebook, Amazon, Apple, Netflix and Google) as they are called, for their rapid growth and their ambitious long term plans. The market capitalization of the FAANGs is more than the whole of the FTSE 100. But these tech giants also find themselves mired in various controversies- data abuse, anti-competitive behavior, tax avoidance and smartphone addiction. However, as The Economist has pointed out in a recent article, "The tech giant that everyone is watching "(The Economist, June 30- July 6, 2018), there is one company that is an exception and makes money in a straightforward way, i.e. provide something valuable to the customers and charge them for it. And that is Netflix, the Over the Top, subscription fee based entertainment company, that is as much loved by investors as by consumers.

Since its founding in 1997, Netflix has morphed from a DVD-rental service to a streaming-video upstart to the world's first global TV powerhouse. This year it will produce more entertainment content than any other TV network, spending $12bn-13bn on content, again much larger than media giants like HBO and the BBC. Netflix viewers will get to see 82 new feature films this year, compared to 23 in case of Warner Brothers and 10 in case of Disney. Netflix is producing or procuring 700 new or exclusively licensed television shows, including more than 100 scripted dramas and comedies, dozens of documentaries and children's shows, stand-up comedy specials and reality and talk shows.

Today, Netflix serves as many as 125 million households, twice the number it served in 2014, an indication of its rapid growth. These families watch Netflix for more than two hours a day on average, consuming a fifth of the world's downstream internet bandwidth. Netflix is also a truly global company. The majority of its subscribers are outside the US.

Netflix has been a disruptive force when we consider that its rise has mirrored the decline of traditional television viewing. Americans between the ages of 12 and 24 watch half as much pay-tv today as they did in 2010. And those in the age group 25-34 are watching 40% less. Networks focused on scripted entertainment or children's programming have been particularly hit by the rise of Netflix.

	As of / Year Ended December 31,				
	2017	2016	2015	2014	2013
			(in thousands)		
Net global streaming membership additions during period (1)	23,786	19,034	17,371	13,041	11,083
Global streaming memberships (1)	117,582	93,796	74,762	57,391	44,350

Background

Netflix was founded in 1997 by Reed Hastings and Marc Randolph in Scotts Valley, California. Randolph admired Amazon and wanted to find a large category of portable items to sell over the Internet using a similar model. The founders first considered and then rejected VHS tapes as too expensive to stock and too delicate to ship. Then they heard about DVDs, which were first introduced in the US in March 1997. They tested the concept of selling or renting DVDs by mail, by mailing a compact disc to Hastings' house in Santa Cruz. When the disc arrived intact, they decided to take on the $16 billion home video sales and rental industry.

Netflix's initial business model included DVD sales and rental by mail. Hastings stopped DVD sales in 1998 to focus on the DVD rental business. In 2007, Netflix expanded its business with the introduction of streaming media, while retaining the DVD and Blu-ray rental service. The company expanded internationally, with streaming made available to Canada in 2010. By January 2016, Netflix services operated in over 190 countries. Today, it is available worldwide except China, Syria, North Korea and Crimea.

Netflix entered the content-production industry in 2012, with its first series, *Lilyhammer*. It has greatly expanded the production of both film and television series since then, offering "Netflix Original" content through its online library of films and television. As of April 2018, Netflix had 125 million total subscribers worldwide, including 56.71 million in the US.

	As of/ Year Ended December 31,			Change	
	2017	2016	2015	2017 vs. 2016	2016 vs. 2015
	(in thousands, except revenue per membership and percentages)				
Global streaming memberships at end of period	117,582	93,796	74,762	25%	25 %
Global streaming average monthly revenue per paying membership	$ 9.43	$ 8.61	$ 8.15	10%	6 %
Revenues	$ 11,692,713	$ 8,830,669	$ 6,779,511	32%	30 %
Operating income	$ 838,679	$ 379,793	$ 305,826	121%	24 %
Operating margin	7%	4%	5%	75%	(20)%
Net income	$ 558,929	$ 186,678	$ 122,641	199%	52 %

Netflix's business model

Netflix was one of the first companies to realize that the wireless internet would not only become a reliable conduit for high quality video but also change the rules of television. There would be no time slots or channels or waiting till next week to know what would happen next in a favorite serial. Customers could watch whatever, whenever and however long they wanted to watch.

Netflix is similar to other FAANGS like Amazon, Google and Facebook in the way it combines scale with personalization. The company has phenomenal data analytics capabilities and is well known for its recommendation engine. More about this a little later. Netflix categorizes individual users' preferences into about 2,000 "taste clusters" and provides different content to different users, even within the same family, via targeted recommendations. As the Economist puts it well:" This mixture of breadth and depth, of content and distribution, of the global and the personal, is the heart of Netflixonomics—the science of getting people to subscribe to television on the internet."

But compared with the other FAANGs, Netflix is also distinctive in several ways. Unlike Facebook and Google, Netflix has steered clear of news and mostly stuck to entertainment. That has protected it from scandals over fake news and electoral manipulation. And unlike ad-based platforms, its subscription-based business model means little reliance on selling users' data or attention to outsiders. Customers pay a monthly fee in return for the content they want to watch. Unlike all the other FAANGs, which claim to be global but are unmistakably American, Netflix is far more respectful of local markets and makes TV shows in 21 countries, dubbing and subtitling them into multiple languages.

One of the reasons for Netflix's spending spree is the winner-takes-most proposition. People can only spend so much time watching television. If they get the entertainment they genuinely enjoy for that length of time, they will have little reason to go somewhere else for further screen-based entertainment. And as Netflix continues to spend heavily on content, it puts pressure on rivals also to spend, thus driving up their cost structure.

Netflix has changed the way decisions are taken in the entertainment industry about whether a show or film is worth making. Based on its 2,000 "taste clusters" and by analyzing how well a programme will reach, attract and retain customers in specific clusters, Netflix can calculate the justifiable acquisition costs. It can target quite precise niches unlike television broadcasts that have to target broad demographic groups. Netflix can also get better revenues for a lesser-quality show than its peers can by showing it only to those who will like it. Take the case of "The Kissing Booth", a romantic high-school comedy released in May. Despite some seething criticism, it has been seen by more than 20 million households. Millions of teenagers targeted by algorithms are adoring its leads, Jacob Elordi and Joey King.

Netflixonomics is also changing the way shows generate revenues. Netflix usually buys exclusive worldwide rights to the shows it makes and acquires, paying a mark-up over production costs. Creators forgo lucrative licensing of their shows to secondary markets because, in Netflixonomics, there are no secondary markets. That produces attractive upfront deals for producers but they make much less if they create something that outperforms expectations. And going forward, the bigger Netflix's share of the market and higher its bargaining power, the less generous its upfront deals may need to be. Thanks to its scale, Netflix can also afford to produce more out-of-the-ordinary and expensive shows than companies looking just at local markets can afford. These shows are meant to make Netflix an enticing premium product. They also allow it to attract the best writers and directors. In June, Baran bo Odar and Jantje Friese, the creators of "Dark", signed up to make more shows for Netflix.

Recommendation engine

More than 80% of the TV shows people watch on Netflix are based on the platform's recommendation system. Netflix uses machine learning and algorithms to help break the preconceived notions of viewers and find shows that they might not have initially chosen. To do this, it looks at nuanced threads within the content, rather than relying on broad genres to make its predictions. The recommendation engine rests on three legs- Netflix members; taggers who understand everything about the content; and machine learning algorithms that take all of the data and put things together to serve the right content to each customer.

Netflix has over 100 million users worldwide. If the multiple user profiles for each subscriber are counted, there are over 250 million active profiles. Netflix has data on a whole lot of things- what shows people watch, what they watch after each show, what they watch before the show, what they watched a year ago, what they have watched recently and what time of the day they watch the show. This viewer data (explicit and implicit) is then combined with content data. Dozens of in-house and freelance staff watch every show on Netflix and tag it. The tags they use range from how cerebral the piece is, to whether it has an ensemble cast, is set in space, or stars a corrupt cop. These tags and the user behavior data are combined with sophisticated machine learning algorithms to figure out what is most important and what should get more weight.

As Todd Yellin, VP, Product Innovation of Netflix says in an interview with Wired, "How much should it matter if a consumer watched something yesterday? Should that count twice as much or ten times as much compared to what they watched a whole year ago? How about a month ago? How about if they watched ten minutes of content and abandoned it or they binged through it in two nights? How do we weight all that? That's where machine learning comes in. What those three things create for us is 'taste communities' around the world. It's about people who watch the same kind of things that you watch."

Viewers fit into "a couple of thousand" taste groups and it's these that affect what recommendations appear on the top of our onscreen interface, which genre rows are displayed, and how each row is ordered for each individual viewer. The tags that are used for the machine learning algorithms are the same across the globe. However, a smaller sub-set of tags are used in a more outward-facing way, feeding directly into the user interface and will differ depending on country, language and cultural context.

Growing competition

Faced with the Netflix threat, Amazon, Apple, Facebook and Google are all getting into content development in a big way. HBO, under its new owner AT&T is trying to emulate Netflix's model of integrated content production and distribution. Apple has hired Hollywood executives to produce a television show for which it has already committed $ 1 bn. YouTube may well start paying more attention to its subscription service which is much smaller today than its free to view business. Among the FAANGS, Amazon look best placed to compete with Netflix globally. Amazon Studios will spend $4 bn this year on content. Jeff Bezos has declared that he wants Amazon to produce big hits like "Game of Thrones". But unlike Netflix, for whom video is everything, for Amazon, it will be part of a bigger strategy.

Netflix CEO, Reed Hastings is not too worried about competition. He believes there is room for both his company and competitors to succeed. Hastings is more worried about Netflix's image as it establishes a large presence in different societies across the world. He realizes the need to be gentle as the company grows bigger.

The road ahead

Netflix's current valuation of about $ 170 bn looks very high and is a matter of concern. To justify its current valuation, Netflix's gross operating profits in 10 years from now would have to be about half of all the profits made by American entertainment firms this year. Netflix has already piled on $8.5bn of debt. Hastings has said Netflix will continue borrowing billions of dollars for many more years. In other words, the company's free cash flow will remain negative for some time. Netflix will be able to handle its debt burden only if it can raise prices while continuing to add subscribers. But competition is intensifying. And in some countries, owners of wireless or broadband infrastructure that also control content-makers may use their distribution clout to keep away Netflix.

The switching power of Netflix's customers should also not be underestimated. The easy-sign-up subscription model is also easy to cancel. Netflix does not discuss its churn rate, but some analysts estimate it to be about 3.5% a month, much higher than pay-tv (around 2%) and wireless providers (closer to 1%). A second problem is its thirst for bandwidth. In markets that lack net-neutrality protection, dominant internet providers might decide to give their own streaming services precedence over Netflix. Aware of such risks, the company is increasingly persuading internet and pay-tv distributors like Comcast, T-Mobile and Sky to bundle its service with theirs.

Concluding notes

Only time will tell whether Netflix will live up to expectations. But there is little doubt that the company has been a pioneer and trail blazer in the entertainment business. Like Softbank we covered earlier, we can learn a lot from Netflix about bold thinking and operating at scale.

Consolidated Statements of Operations:

	Year ended December 31,				
	2017	2016	2015	2014	2013
	(in thousands, except per share data)				
Revenues	$ 11,692,713	$ 8,830,669	$ 6,779,511	$ 5,504,656	$ 4,374,562
Operating income	838,679	379,793	305,826	402,648	228,347
Net income	558,929	186,678	122,641	266,799	112,403
Earnings per share:					
Basic	$ 1.29	$ 0.44	$ 0.29	$ 0.63	$ 0.28
Diluted	$ 1.25	$ 0.43	$ 0.28	$ 0.62	$ 0.26
Weighted-average common shares outstanding:					
Basic	431,885	428,822	425,889	420,544	407,385
Diluted	446,814	438,652	436,456	431,894	425,327

Consolidated Statements of Cash Flows:

	Year Ended December 31,				
	2017	2016	2015	2014	2013
	(in thousands)				
Net cash (used in) provided by operating activities	$ (1,785,948)	$ (1,473,984)	$ (749,439)	$ 16,483	$ 97,831
Free cash flow (1)	(2,019,659)	(1,659,755)	(920,557)	(126,699)	(16,300)

(1) Free cash flow is defined as net cash (used in) provided by operating and investing activities, excluding the non-operational cash flows from purchases, maturities and sales of short-term investments. See Liquidity and Capital Resources for a reconciliation of "free cash flow" to "net cash (used in) provided by operating activities."