

Media

Webtoons: The next frontier in global mobile content

Webtoons: No. 1 in Korea = No. 1 in the world

Korea is the birthplace of webtoons. As a “snack-culture” format optimized to smartphones, Korea’s webtoons have made significant progress over the years and now boast the strongest platform/content competitiveness in the world. As demand for mobile entertainment continues to grow, webtoons are capturing the eyes and wallets of an increasing number of users, presenting a significant opportunity for Korean platform providers.

Webtoons to take shape as a distinct market

Webtoons are more than just an online conversion of paper-based comic books. They represent a new form of content created by the mobile internet ecosystem. Not only is the potential audience larger, but the time spent on webtoons tends to be longer than time spent reading paper comics. In Korea, webtoons already account for the second largest share of time spent on apps, after videos. When assuming full monetization, the size of the webtoon market is on a completely different level than the traditional comic book market.

Webtoons are also gaining traction among younger people in the global market, similar to what we saw in Korea five to 10 years ago. With the help of marketing and a well-established user/writer base, webtoons look likely to take root as a new culture in overseas markets. Of note, LINE Webtoon has seen impressive user growth in the US, with 8mn monthly active users (MAU).

Superior profit model and content ecosystem already in place

Webtoons have a superior income model compared to other content formats. The adoption of microtransactions means webtoons have the potential to generate higher average revenue per paying user (ARPPU) than Netflix (NFLX US/CP: US\$291.56; monthly subscription), YouTube (ads), or Spotify (SPOT US/CP: US\$124.39; ads and subscriptions). In terms of user engagement indicators (time spent, frequency, retention, etc.), webtoons in Korea have already surpassed music streaming services and are now comparable to video streaming services. We believe ARPPU, which is currently around the W3,000 level, could exceed W10,000 (the ARPPU of music and video streaming services) based on full monetization.

It is also encouraging that the webtoon content ecosystem is established firmly around platforms. Profit sharing, which provides strong motivation to writers, and ongoing campaigns to attract new writers are likely to improve content quality. As demonstrated in the case of YouTube, quality content is an important driver behind the growth of both content supply and usage.

NAVER, which operates the world’s largest platform, to benefit from rise of webtoons

NAVER Webtoon—wholly owned by NAVER (035420 KS/Buy/TP: W230,000/CP: W157,500)—is the largest webtoon platform by revenue and users across Korea, Japan, the US, and major countries in Southeast Asia. The service is in the early stages of monetizing its 55mn MAU, and the results have been materializing in recent months. In August, NAVER Webtoon’s revenue grew 29% YoY in Korea, 15,790% YoY in the US, and 5,551% YoY in other regions. The webtoon service reached breakeven domestically in late 2018 and is expected to turn a profit globally in late 2019.

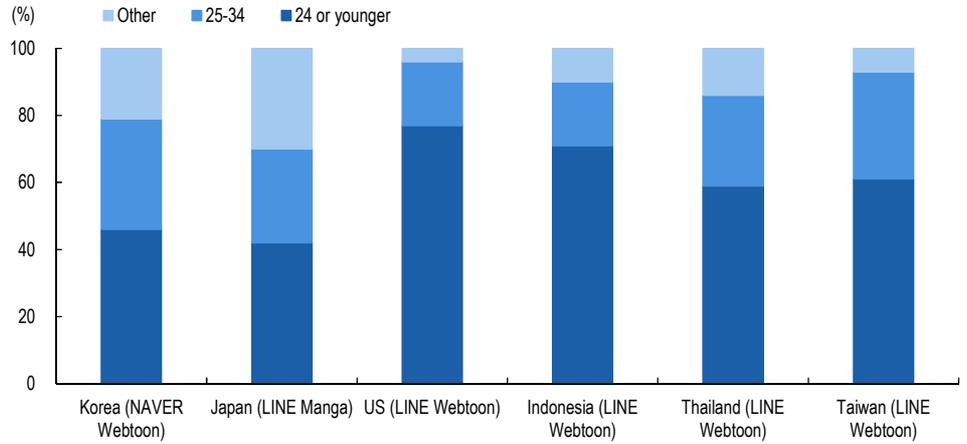
We value NAVER Webtoon at W5.7tr, which we derived by applying a P/S of 7x to our 2020-21 average transaction volume forecast. Our target multiple represents Netflix’s average multiple during its global expansion phase. We highlight that 1) revenue is growing sharply as global monetization begins, and 2) content quality is likely to improve over the long term on the back of a robust ecosystem.

C O N T E N T S

Key charts	3
I. Webtoons, the next frontier in mobile content	4
Smartphones increasingly used for entertainment	4
Webtoons, a new form of content	5
II. Webtoons: No. 1 in Korea = No. 1 in the world	8
Korea, the birthplace of webtoons	8
Global market: Popularity of Korean webtoons growing	10
III. Upside potential in fair value of webtoon platforms	14
Webtoon ARPPU likely to exceed that of music/video streaming services	14
Ecosystem for content platforms: Self-sustaining content supply system to support long-term growth	17
Applying target P/S of 7x for webtoons in light of strong revenue growth and rising margins	20
IV. Webtoon market growing rapidly despite the early stage of monetization	21
YoY revenue growth in August: NAVER Webtoon +175%; LINE Manga +53%; Piccoma +113%	21
NAVER, operator of the world's largest webtoon platform, to benefit from demand growth	24

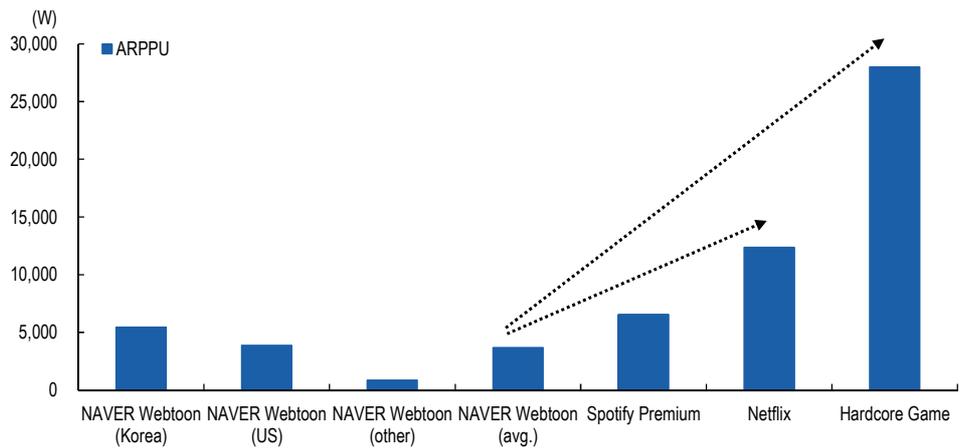
Key charts

Figure 1. Webtoons are gaining traction among young people in the US



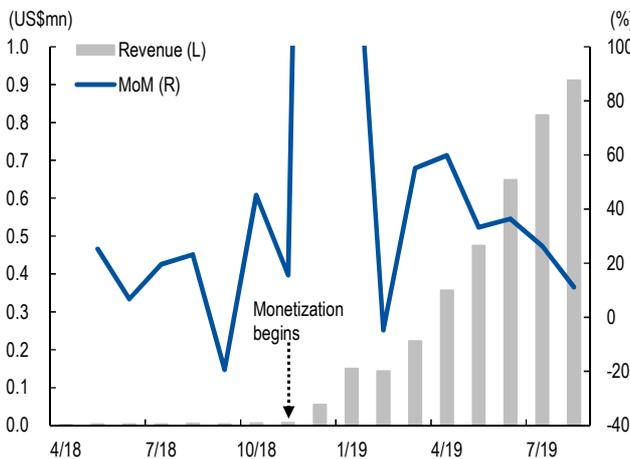
Source: NAVER, Mirae Asset Daewoo Research

Figure 2. Webtoons can potentially surpass music/video streaming in terms of ARPPU



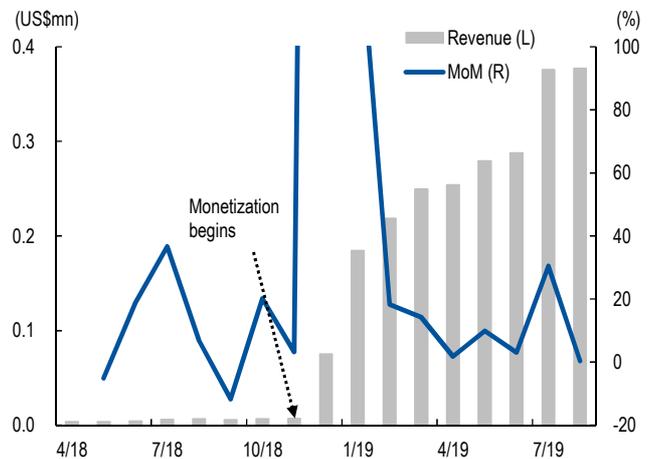
Notes: NAVER Webtoon figures are based on our estimates.
Source: Company data, Mirae Asset Daewoo Research

Figure 3. NAVER Webtoon revenue in the US (mobile app): +15,790% YoY in August



Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 4. NAVER Webtoon revenue in other countries (mobile app): +5,551% YoY in August



Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

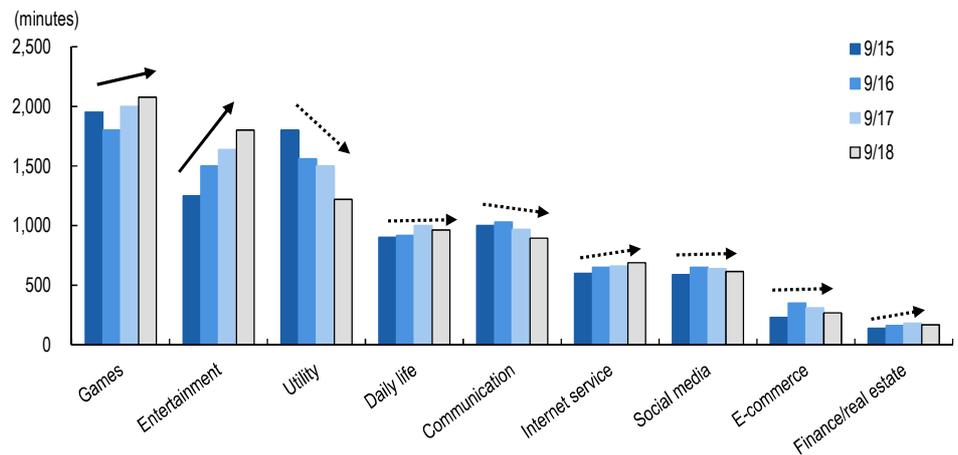
I. Webtoons, the next frontier in mobile content

Smartphones increasingly used for entertainment

Almost a decade has passed since smartphones became a ubiquitous feature of everyday life. Penetration and screen time have risen steadily, while app store ecosystems have improved user convenience. As smartphones grew in popularity, their uses multiplied; smartphones are now used to: 1) communicate (via social media, networking, and instant messaging services), 2) obtain information (via search engines and news portals), 3) access services (maps, shopping, delivery, reservations, etc.), and 4) consume entertainment (games, videos, music, and webtoons).

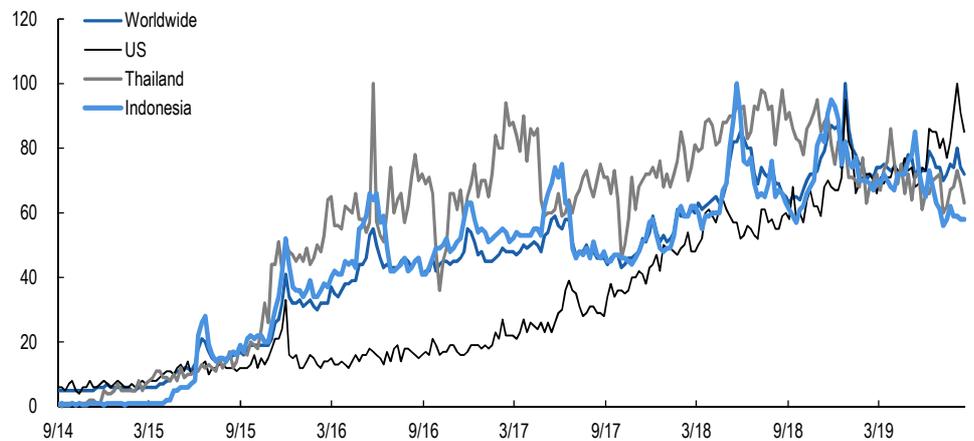
In terms of time spent, the use of smartphones for entertainment has continued to grow steadily even after 100% smartphone penetration was reached in 2015. Meanwhile, the use of smartphones for communication and utility has been on a downtrend, while their use for everyday activities and information has stayed flat. This suggests smartphones are gradually turning into entertainment tools.

Figure 5. Time spent on apps by category: Entertainment shows visible growth



Source: Koreanclick, Mirae Asset Daewoo Research

Figure 6. Google Trends for “webtoon”: A sharp rise in the US



Source: Google, Mirae Asset Daewoo Research

Webtoons, a new form of content

People who use smartphones mainly for entertainment tend to always be on the lookout for something new and exciting. Therefore, it is rare for the market share of one entertainment-related app to stay high for long. Rather, the market trend is characterized by an overall rise in time spent on entertainment, with each new roll-out enjoying brief popularity.

Globally, videos are the most popular form of content. Netflix and YouTube collectively account for 26% of total web traffic (YouTube’s mobile web traffic share is 37%). Netflix (ready-made content) and YouTube (user-generated content) helped establish a new kind of media channel by creating/distributing content already familiar to viewers (dramas, movies, etc.) Thus, a positive feedback loop was created, with time spent on content and content volume increasing in tandem.

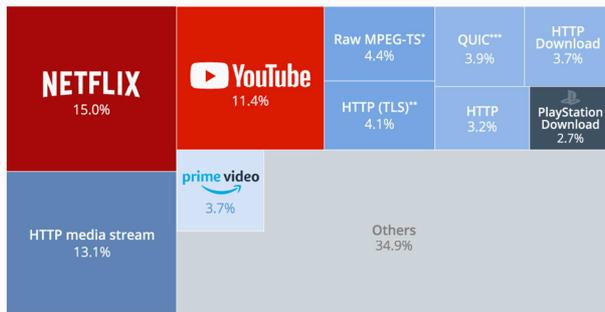
For similar reasons, we expect webtoon demand to expand. Webtoons are easier to produce and distribute than paper comics, as well as shorter and more concentrated. They have already become an important part of the so-called “snack culture,” the trend of consuming short bits of content during one’s free time. Moreover, webtoons are prone to growth due to their low entry barriers (in terms of both consumption and production) and the high scalability of source IPs (easy format change).

Figure 7. Videos are the most popular form of content; Netflix and YouTube collectively account for 26% of total web traffic

Figure 8. YouTube’s mobile web traffic share: 37%

Netflix is Responsible for 15% of Global Internet Traffic

Distribution of worldwide downstream traffic, by web application

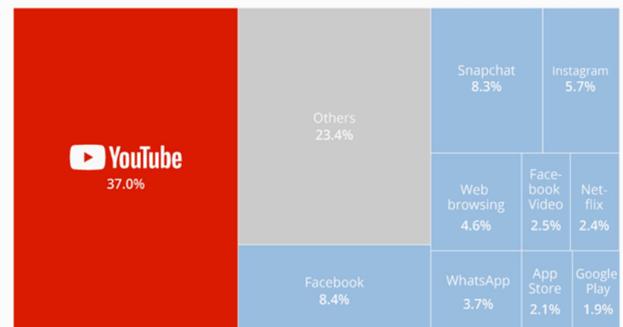


* Digital container format for the transmission and storage of audio, video, and data.
 ** Security protocol
 *** Network protocol designed to speed up online web applications
 @StatistaCharts Source: Sandvine | The Global Internet Phenomena Report



YouTube is Responsible for 37% of All Mobile Internet Traffic

Share of global downstream mobile traffic, by app



@StatistaCharts Source: Sandvine | The Mobile Internet Phenomena Report (February 2019)



Source: Sandvine, Statista, Mirae Asset Daewoo Research

Source: Sandvine, Statista, Mirae Asset Daewoo Research

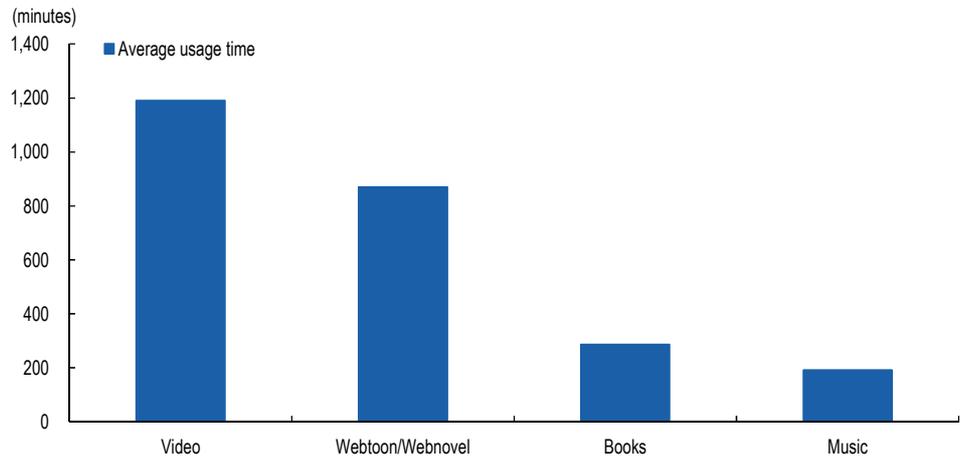
Domestic: Catching up with videos in terms of time spent

Webtoons have transformed comics into a new type of entertainment content. As in the case of YouTube, the profit-sharing system between platform and content providers has taken root. Moreover, thanks to the steady emergence of new content producers, traffic has increased visibly since the mid-2010s.

Recent domestic user data suggest webtoons may be becoming the next big thing in mobile media. According to Koreanclick, the monthly average number of webtoon mobile app users reached approximately 9mn in September 2018. In terms of time spent, webtoons have reached a level roughly 73% that of videos.

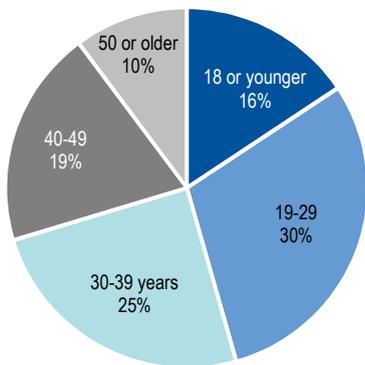
Alongside growing demand for webtoons, the percentage of users in their 20s or younger fell from 46% in 2015 to 30% in 2018. Viewer retention remained high among existing users, and the expansion of genres and marketing efforts helped attract new users in their 30s and 40s (who have strong purchasing power). Given this positive change in user age distribution, we expect the webtoon market to expand sharply once monetization increases further.

Figure 9. Time spent on webtoons: Roughly 73% that of videos



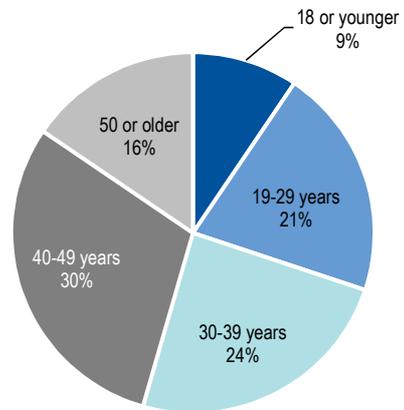
Source: Koreanclick, Mirae Asset Daewoo Research

Figure 10. Webtoon user demographics in 2015: 46% were in their 20s or younger



Source: Mirae Asset Daewoo Research

Figure 11. Webtoon user demographics in 2018: People over 30 grew to above 70%



Source: Mirae Asset Daewoo Research

Overseas: First year into monetization; Popular among younger people

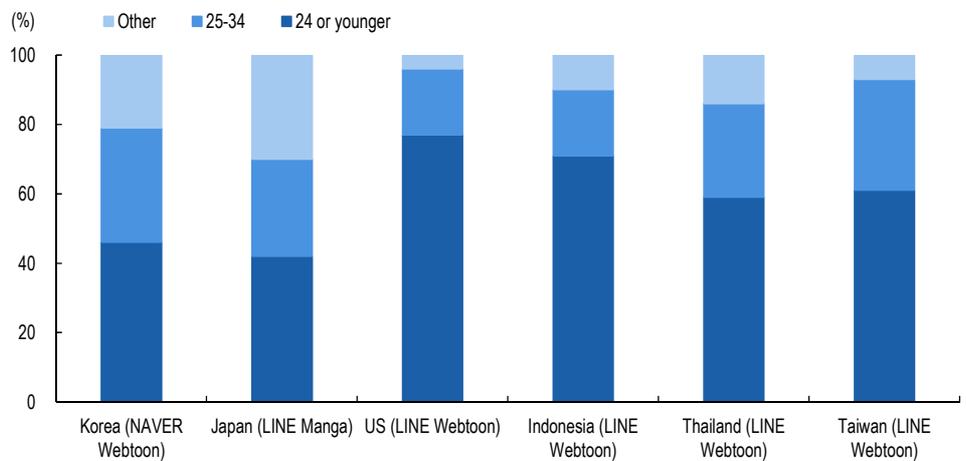
Colored comics in long, vertical strips are a familiar content format in Asian markets. Messenger app LINE (3938 JP/CP: JPY4,041) expanded into these markets early on. The webtoon markets in Europe and the US are still in the early stages, but we note that demand in Europe has just begun to pick up, while major marketing campaigns are underway in the US, including Times Square ads in New York.

In the global market, webtoons are gaining traction among younger people. The webtoon audience share of those under the age of 24 stands at 59% in Thailand, 71% in Indonesia, 61% in Taiwan, and 77% in the US. This is similar to the situation in Korean and Japan about 10 years ago. As these markets matured, however, the audience share of young people has fallen to around 40% (based on NAVER Webtoon). This is the result of both the retention of existing webtoon users (who have aged) and marketing and promotions to attract older users.

Similar growth patterns have been observed in Snapchat (SNAP US/CP: US\$16.9), Facebook (FB US/CP: US\$188.14), and Twitter (TWTR US/CP: US\$43.34). Notably, when these social media apps were launched, they were simply viewed as a mobile conversion of desktop-based social networks. But as mobile platforms and services became more firmly rooted, they ended up creating new markets that have dwarfed the desktop-based ones.

In a similar way, we expect webtoons to take shape as a distinct market, separate from paper comics. Not only is the potential audience larger, but the time spent on webtoons tends to be longer than time spent reading paper comics. Accordingly, the unique context of webtoons—rather than the existing framework built by paper comics—should be considered when making market projections about traffic and user growth.

Figure 12. Young people in the US have started to enjoy webtoons



Source: NAVER, Mirae Asset Daewoo Research

Figure 13. Line Webtoon ad in Times Square, New York



Source: Mirae Asset Daewoo Research

II. Webtoons: No. 1 in Korea = No. 1 in the world

Korea, the birthplace of webtoons

Webtoons have steadily evolved over the past 20 years

Webtoons are digital comics (with 50-60 cuts) that comprise text, images, and sometimes multimedia (sound, etc.). New episodes are typically released on a weekly basis and often feature cliffhanger endings. Webtoons are a new form of content developed to suit Korea's digital environment.

Since the late 1990s, amid the proliferation of the internet and increasing digitalization of analogue content, digital comics have been created in many forms. Their format has transformed and evolved over the years as content creators have sought new ways to appeal to the audience (captured images and automatic page turning → scroll-down format → multimedia effects such as flash and sound → dedicated webtoon apps), resulting in the current webtoon format.

The themes and audience have also seen changes. Initially, webtoons featured simple, light-hearted stories about personal experiences and everyday life. Created by unknown people, they were posted on personal blogs and popular websites and spread among web users. Later, as webtoons began to be published on internet portals, the stories became increasingly narrative-driven and dramatized, with more sophisticated pacing. Under the user-created content model, internet portals have allowed a growing number of authors, both new and established, to earn income from webtoons (salary or profit-sharing), ensuring a stable supply of content.

To sum up, webtoon content and platforms represent a unique content genre and distribution system developed in Korea. What users enjoy today is the result of years of optimization and transformation in areas such as platform services, content supply systems, storylines, and formats. Korea is indeed the global trend-setter in all aspects of webtoons.

Figure 14. Webtoons have evolved over the years in format, themes, and construction



Source: KOCCA, Mirae Asset Daewoo Research

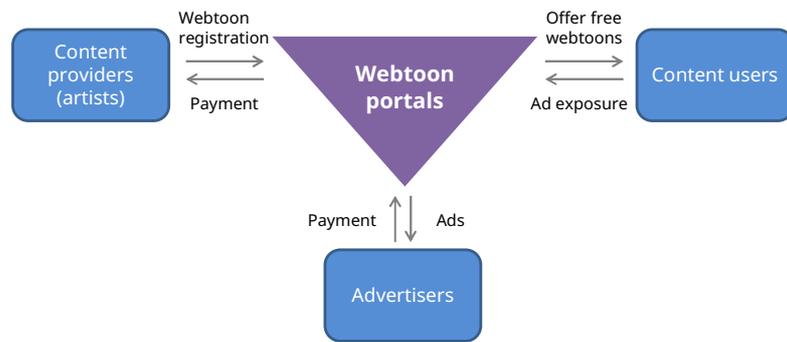
From free content (with ads) to monetization

In the early 2000s, internet portals such as NAVER, Nate, Daum, Yahoo, and Empas used webtoons as a means to attract large volumes of web traffic. In this way, they sought to build an internet user ecosystem around their own portals/platforms. With free webtoons (with ads) providing a steady boost to web traffic, the exposure-based ad pricing model gained traction.

In the 2010s, mobile webtoon services have grown in popularity amid the proliferation of mobile internet (smartphones and tablet PCs). As webtoon platforms moved from desktops to mobile devices, internet portals began to partially monetize webtoons and introduced a wide variety of content-based ads.

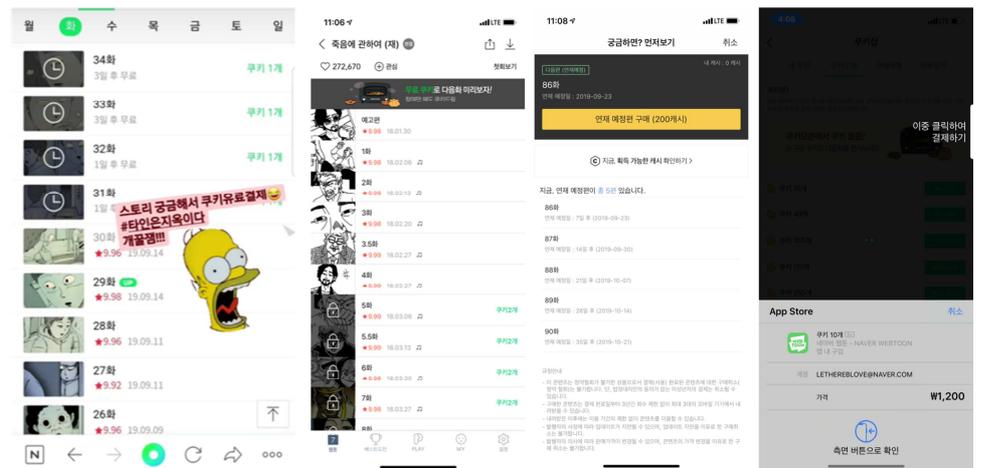
Lezhin Comics quickly monetized its adult-targeted webtoons after the portal's 2013 launch. KakaoPage, the webtoon content platform of Kakao (035720 KS/Buy/TP: W177,000/CP: W135,500), introduced a partial monetization model in October 2014 with a hugely successful “pay or wait” system, which charges only those willing to pay for early access to new episodes (after offering the first few episodes for free). NAVER Webtoon followed suit with a similar partial monetization model.

Figure 15. Webtoons in the past: Based on the ad business model



Source: KOCCA, Mirae Asset Daewoo Research

Figure 16. Webtoons in the present: Partial monetization



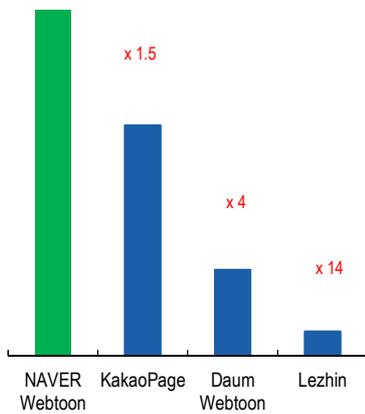
Source: NAVER, Kakao, Mirae Asset Daewoo Research

Global market: Popularity of Korean webtoons growing

Amid an increase in global webtoon demand, Korean content/platform service providers are extending their global reach. Korean webtoons set themselves apart from Japanese (black and white manga) and US comics (graphic novels) in both content and format. Korean webtoon formats (long, vertical strips) are best-suited to the mobile platform, and the storylines are unique and have evolved over the years to better appeal to audiences at home and abroad. The global popularity of Korean dramas (which often draw from webtoons for their stories) has also helped draw attention to Korean webtoons.

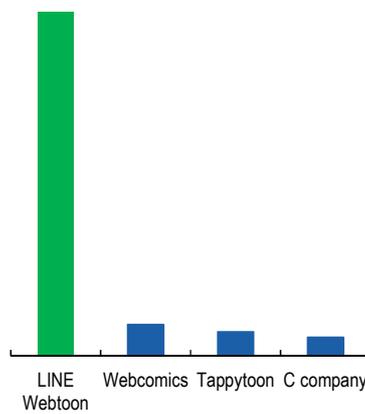
NAVER Webtoon (LINE Webtoon) is the no. 1 webtoon platform in Korea, the US, and Southeast Asia, and Tapastic is also making strides in the US. Kakao, which has an advantage when it comes to source IPs, holds second place in Korea and Japan. Lezhin Comics, which started monetizing its content relatively early, is already generating meaningful levels of revenue in Korea, Japan, and the US. Recently, the company partnered with Chinese webtoon platforms Quiquan and Tencent (0700 HK/CP: HK\$338.4) to distribute its content.

Figure 17. Webtoon app MAU in Korea



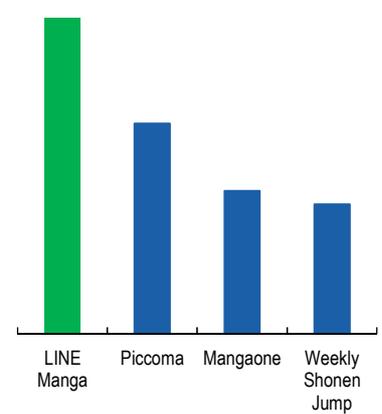
Source: NAVER, Mirae Asset Daewoo Research

Figure 18. Webtoon app MAU in US



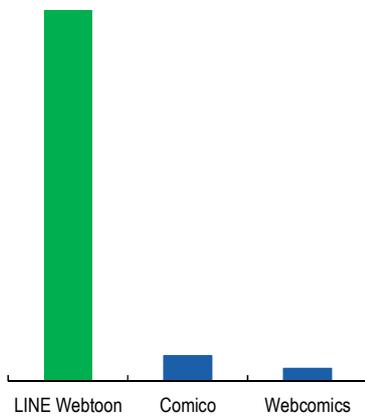
Source: NAVER, Mirae Asset Daewoo Research

Figure 19. Webtoon app MAU in Japan



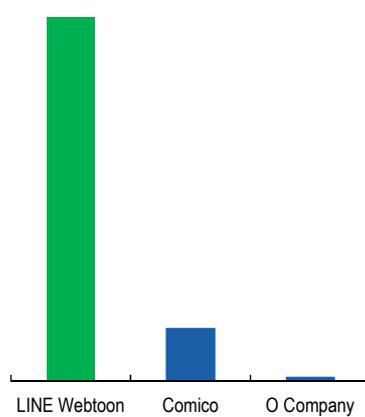
Source: NAVER, Mirae Asset Daewoo Research

Figure 20. Webtoon app MAU in Indonesia



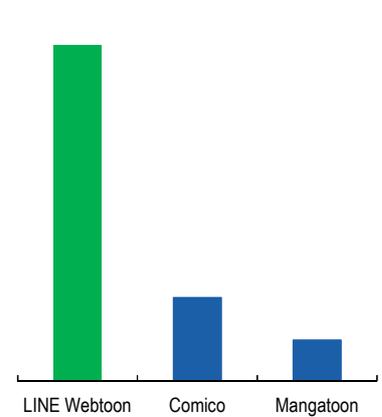
Source: NAVER, Mirae Asset Daewoo Research

Figure 21. Webtoon app MAU in Thailand



Source: NAVER, Mirae Asset Daewoo Research

Figure 22. Webtoon app MAU in Taiwan



Source: NAVER, Mirae Asset Daewoo Research

Korea: Monetization to expand

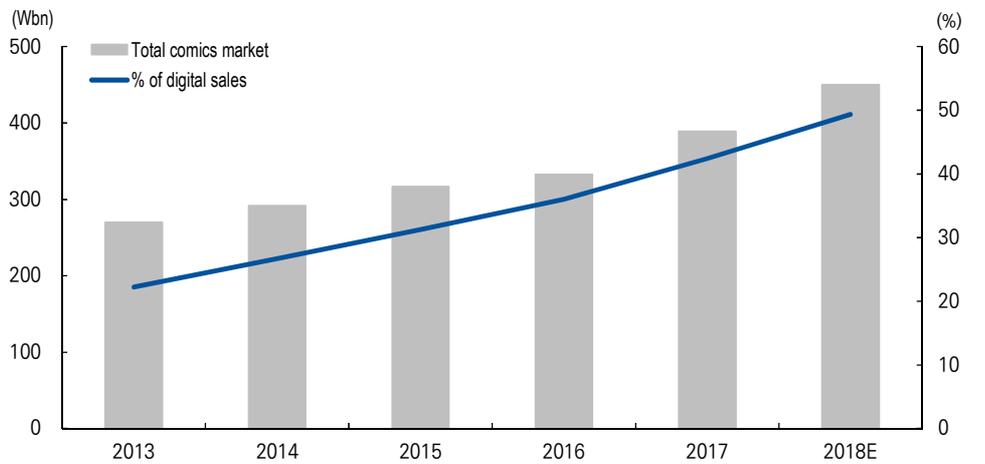
The domestic comics market reached W453.4bn in 2018, with book sales and digital sales accounting for 51% and 49%, respectively. However, digital comics have expanded rapidly over the past five years (+29.9%), far outpacing the growth of the book format (+1.7%). The overall downturn in the publication market had weighed on comics, but since 2013 the market has been supported by digital comics’ rapid advance. We estimate that more than half of digital comics are free (including those under the “pay or wait” scheme), meaning the market would already potentially surpass W1tr under full monetization.

The domestic webtoon market has been developed and nurtured by internet portals. Based on MAU (Koreanclick), the top players are: NAVER (7.39mn MAU), Kakao (KakaoPage: 5.55mn MAU; Daum Webtoon: 1.9mn MAU), Lezhin Comics (740,000 MAU), Mrblue (120,000 MAU), and Toomics (100,000 MAU). Among them, NAVER and Kakao have secured dominant positions, with their service policies influencing almost all aspects of the webtoon industry (from the way content is consumed to how profits are shared).

For years, such portals have carefully positioned themselves between free access (to attract more users) and aggressive monetization (to generate profits). Lezhin’s monetization during the early stages of its business (2013) and Kakao’s introduction of the “pay or wait” model (in 2016) are all part of such positioning efforts. Now, we believe webtoon platforms are poised to begin expanding monetization, charging fees for previously free content.

We expect the digital comics market to grow at a CAGR of 30% over the next three years. Given the growing mix of users aged 30-40, spending on webtoons should climb. NAVER Webtoon and KakaoPage are also expected to undertake aggressive marketing and monetization efforts to expand the market size ahead of their respective IPOs.

Figure 23. Korean comics market: W450bn; Digital sales represent 50%



Source: PwC, Mirae Asset Daewoo Research

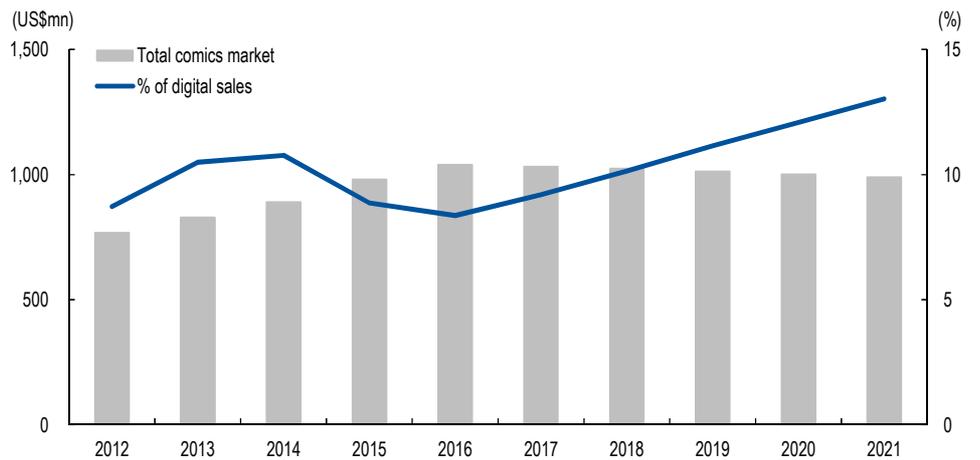
The US: The land of opportunity

The US is the world's second largest comics market, with a global market share of approximately 15%. In the US, paper-based comics remain the dominant format, with digital sales accounting for only 9% (although growth has accelerated recently). Around 80% of comics consumed in the US are produced by DC Comics and Marvel Comics, with superheroes being the most popular genre. Indeed, superhero comics have spawned movies, theme parks, and various merchandise.

Webtoons, distinct from graphic novels (which come in both book and digital formats), have gained popularity with people under 24 years old. Romance is the most popular genre in the US, but fantasy and drama are also in high demand. NAVER Webtoon (LINE Webtoon) offers both Korean and American content (50:50), and its user demographics are 50% white and 20% Asian.

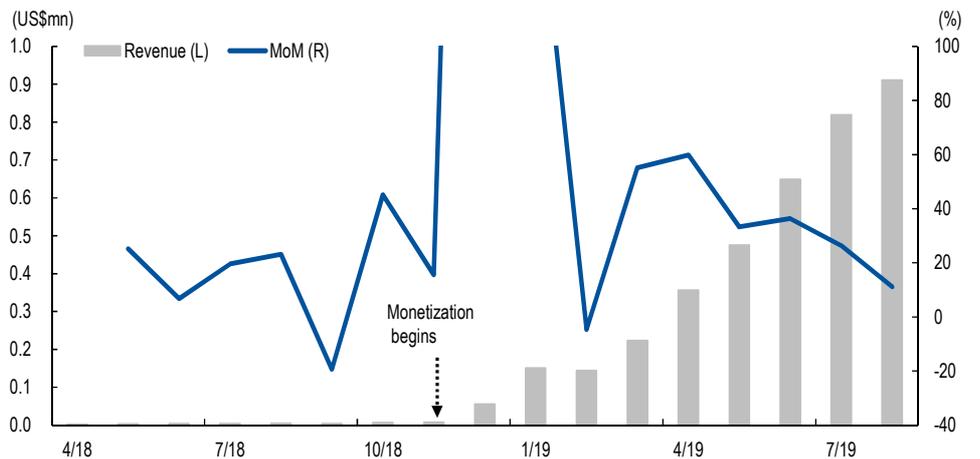
Three Korean webtoon platforms have successfully broken into the US market. NAVER Webtoon (LINE Webtoon started to offer English-based webtoons in 2015) has the largest market share, with around 8mn MAU. Tapastic (launched at end-2012) has 2mn MAU. It offers mostly local works, but the firm has partnered with KakaoPage to satisfy the strong demand for Korean webtoons. Lezhin Comics (US operations launched in 2015) reported 2018 revenue of W10.5bn in the US market. Recently, the company has started to include more local works in its webtoon lineup. These platforms have a few things in common: 1) weekly uploads, 2) the vertical strip format, and 3) a partial monetization model.

Figure 24. US comics market: W1.3tr; Digital sales represent 9%



Source: PwC, Mirae Asset Daewoo Research

Figure 25. LINE Webtoon reported sharp revenue growth in the US immediately following monetization in November 2018



Source: Sensor Tower, Mirae Asset Daewoo Research

Japan: World’s largest comics market; Korea-based platforms dominant in webtoons

Japan is the world’s largest comics market, with a global market share of roughly 38%. The country’s paper-based comic book market has remained stagnant, shrinking 1.9% per annum over the past three years. The market for digital comics, however, has expanded at a CAGR of 16.5% over the same period. Although some consumers still prefer paper-based comic books, digital comics have seen rapidly growing popularity in Japan. Indeed, a string of Japanese paper comics have either ceased or suspended publication due to declining circulation (excluding some popular titles like *Weekly Shonen Jump*, *Weekly Shonen Magazine*, and *Weekly Shonen Sunday*). On the other hand, leading webtoon platforms have been delivering rapid transaction growth; according to market research firm Sensor Tower, the transaction values of LINE Manga and Piccoma (Kakao) have climbed 85.6% and 141.4% YTD, respectively.

At present, the two leading Korea-based webtoon platforms have dominant market shares in Japan. LINE Manga currently holds the top spot in terms of transaction value and MAU (6.5mn). Launched in April 2013, the platform adopted a monetization model (“pay or wait”) in June 2018. Recently, its quarterly transaction volume approached W65bn. The no. 2 platform, Piccoma (Kakao), was launched in April 2016 and introduced a partial monetization model early on. It also introduced a video streaming service (Piccoma TV) in July 2018. Its quarterly revenue stands at around W25bn, with MAU approaching 4mn.

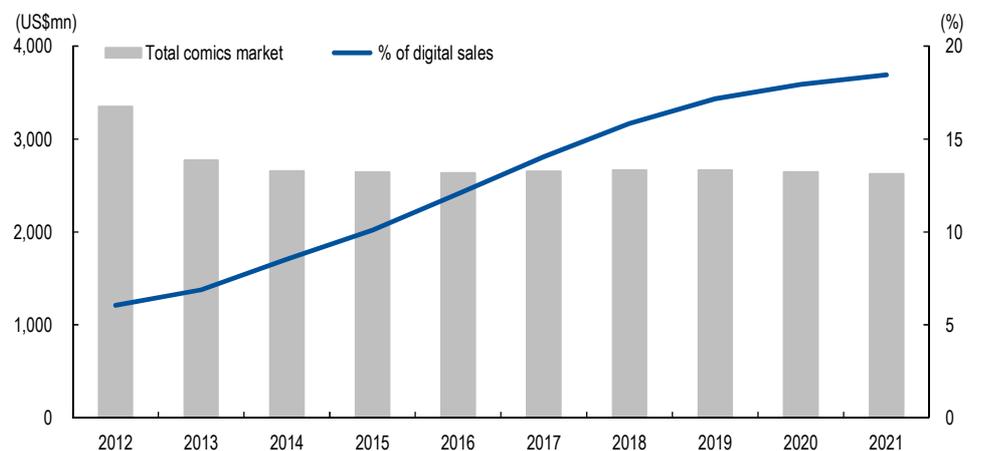
Southeast Asia: Small in size, but plenty of growth potential

Southeast Asia is estimated to represent less than 2% of the global comics market. The size of the comics market is around US\$20mn in Thailand, US\$10mn in Taiwan, and US\$27mn in Indonesia. Though small in size, the Southeast Asian webtoon market has huge growth potential, supported by the steady expansion of both the customer base and revenue.

Until the webtoon format emerged, the Southeast Asian comics market was dominated by Japanese manga. In a 2014 survey conducted by M&C! Comics, the comic books division of Indonesia’s largest publishing company, 91% of respondents chose Japanese comics as their favorite comics. However, since Korean webtoon platforms entered the region at end-2014, their share in the market has rapidly increased, and local platforms are also building a presence.

In most Southeast Asian countries, NAVER Webtoon ranks first in terms of revenue. The most popular webtoon genres in this region are romance, drama, and school life (appealing to teenagers). At present, webtoons by Korean artists make up more than half of the 10 most popular (highest grossing) works in the region; efforts are underway to nurture local webtoon artists. In a bid to expand its footing in Indonesia, KakaoPage acquired Neobazar, operator of Indonesia’s second largest webtoon platform (Webcomics), in December 2018. The newly acquired platform offers a variety of Korean webtoons under a partial monetization model.

Figure 26. Japan’s comics market is estimated at W3.2tr, with digital sales representing 16%



Source: PwC, Mirae Asset Daewoo Research

III. Upside potential in fair value of webtoon platforms

Webtoon ARPPU likely to exceed that of music/video streaming services

One of the key revenue models for internet firms is known as “freemium,” meaning a combination of free and premium services. Under this business model, a majority of subscribers enjoy free service, while 10-20% of them use paid services.

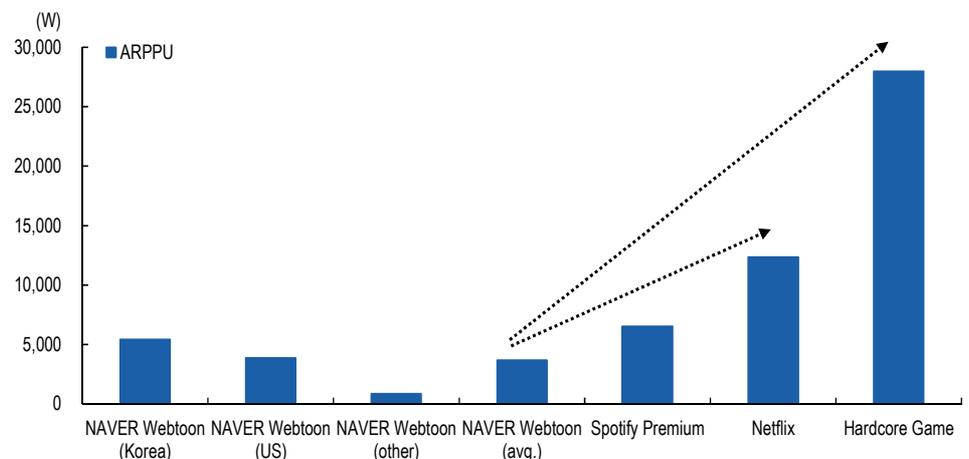
We believe webtoons represent a successful case of the freemium model. Platform operators first attract customers by providing free webtoon content, and then generate revenue by charging for sneak peaks of upcoming episodes or premium access to completed series or special episodes. Major platform operators are rapidly shifting toward service monetization.

Music streaming services are a classic example of the freemium model. Melon, an online music service, allows users to listen to a song free of charge for up to one minute, but payment or a subscription is needed to listen to an entire song or download it. As Melon strongly incentivizes customers to pay for its service, most users are paying customers. Meanwhile, Spotify offers users the choice of an ad-supported free service (with certain limitations) or an ad-free premium subscription. Premium users account for 47% of Spotify’s active users, as consumers are less resistant to an ad-based free streaming service than to time-limited free trials.

We expect ARPPU from webtoon services to rapidly reach the levels of music streaming services. In Korea, where the webtoon market is already well-developed, webtoon services are ahead of music services in key user engagement metrics such as average time spent, frequency of use, and user retention rate. That is, user engagement—a key indicator for future revenue potential—is higher for webtoon services than for music services.

Moreover, the key user engagement metrics for webtoon services are nearing those for video platforms, and we expect webtoon ARPPU to exceed that of video streaming services. While music and video streaming services adopt a fixed payment method, webtoon services use a pay-per-view method. Therefore, webtoon ARPPU is expected to rise rapidly in line with heavier usage and an increase in users with strong buying power, as in the case of gaming services.

Figure 27. Webtoon ARPPU to exceed that of music/video streaming services



Note: NAVER’s webtoon revenue is based on our estimates
 Source: Company data, Mirae Asset Daewoo Research

Table 1. Use of mobile apps by key metric (first week of September 2019)

	No. of weekly net users	Average time spent per week (minutes)	Average frequency of use per week (days)	Weekly user retention rate (%)
NAVER Webtoon	4,058,975	109.7	4.3	91.0
KakaoPage	2,804,881	286.0	5.0	87.0
Melon	2,298,668	39.9	3.2	72.7
YouTube	21,599,064	334.1	4.0	86.7
Netflix	1,225,300	161.0	2.7	68.3

Note: Based on Android apps

Source: Koreanclick, Mirae Asset Daewoo Research

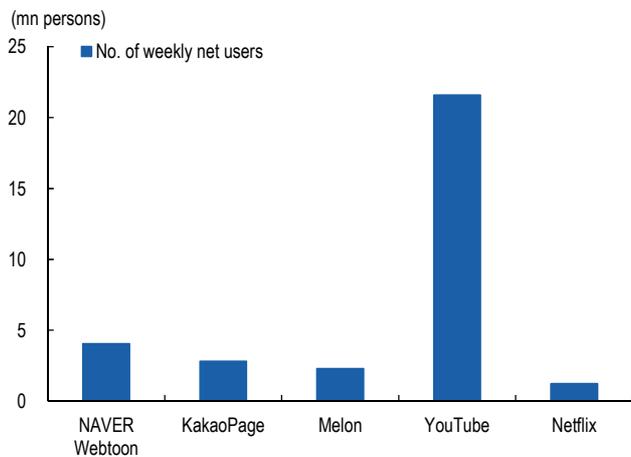
Table 2. Use of mobile apps by key metric (August 2019)

	No. of monthly net users	Average time spent per month (minutes)	Average frequency of use per month (days)	Monthly user retention rate (%)
NAVER Webtoon	4,766,856	448.2	3.2	93.7
KakaoPage	3,836,033	1,023.7	3.0	81.2
Melon	3,757,195	91.9	2.5	77.7
YouTube	26,607,430	1,192.5	3.1	94.2
Netflix	1,870,519	342.7	2.3	71.9

Note: Based on Android apps

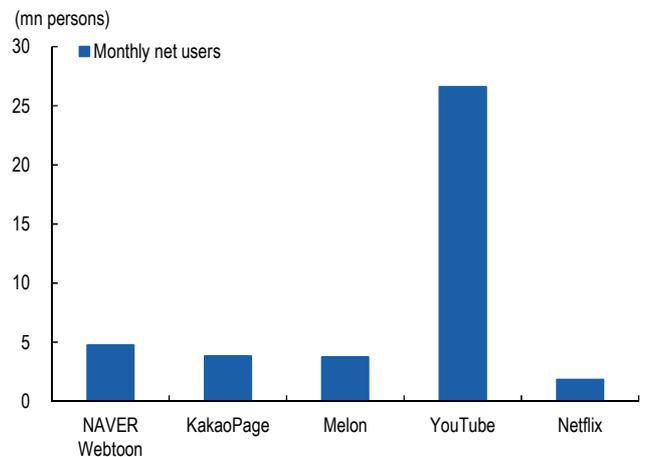
Source: Koreanclick, Mirae Asset Daewoo Research

Figure 28. Use of mobile media platforms in Korea: Weekly net users



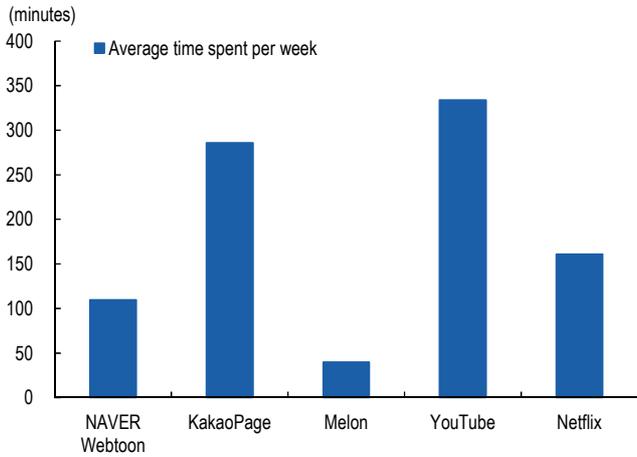
Source: Koreanclick, Mirae Asset Daewoo Research

Figure 29. Use of mobile media platforms in Korea: Monthly net users



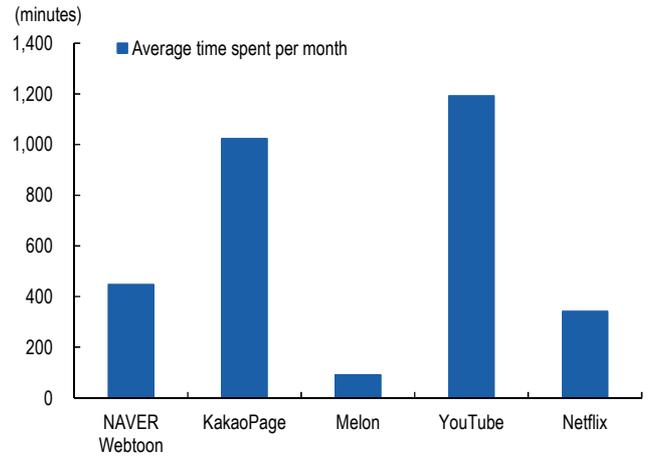
Source: Koreanclick, Mirae Asset Daewoo Research

Figure 30. Use of mobile media platforms in Korea: Average time spent per week



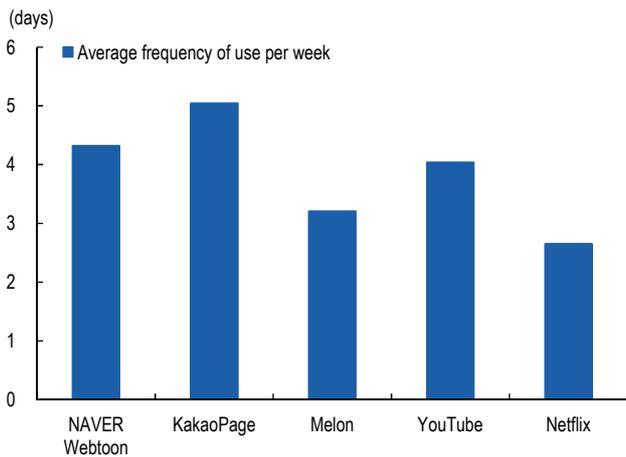
Source: Koreanclick, Mirae Asset Daewoo Research

Figure 31. Use of mobile media platforms in Korea: Average time spent per month



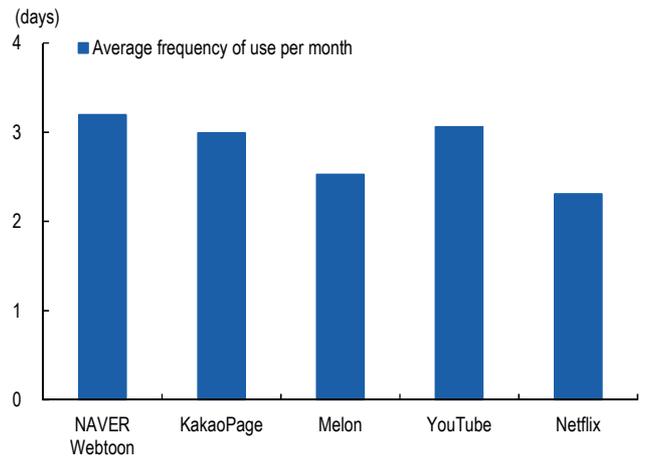
Source: Koreanclick, Mirae Asset Daewoo Research

Figure 32. Use of mobile media platforms in Korea: Average frequency of use per week



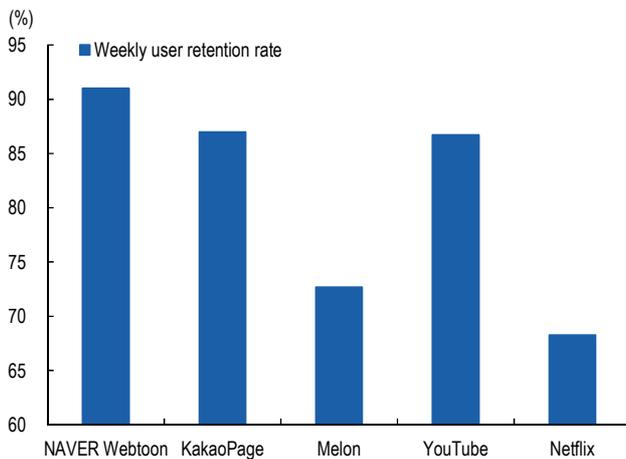
Source: Koreanclick, Mirae Asset Daewoo Research

Figure 33. Use of mobile media platforms in Korea: Average frequency of use per month



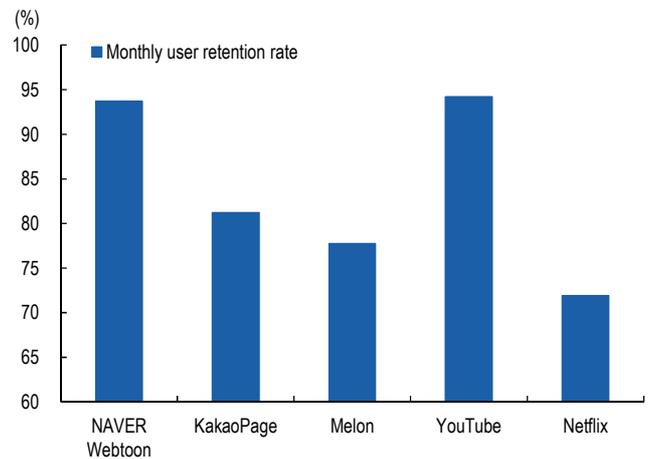
Source: Koreanclick, Mirae Asset Daewoo Research

Figure 34. Use of mobile media platforms in Korea: Weekly user retention rate



Source: Koreanclick, Mirae Asset Daewoo Research

Figure 35. Use of mobile media platforms in Korea: Monthly user retention rate



Source: Koreanclick, Mirae Asset Daewoo Research

Ecosystem for content platforms: Self-sustaining content supply system to support long-term growth

To ensure the long-term growth of a content format, a platform with a solid user base and self-sustaining content supply system is needed. A case in point is YouTube. The video streaming platform, which was founded in 2005, has rapidly expanded its presence in the global online ad market and been the driving force for online video content demand since its acquisition by Google in 2006. YouTube allows creators to publish and monetize their content and develop solid user bases around the world. This has led to content quality improvement and helped stimulate content creation and consumption.

Like YouTube, major webtoon platforms have strived to secure a stable supply of content. In the long term, we believe webtoon platforms will solidify their position as a niche format, backed by well-established revenue-sharing schemes and efforts to secure new creators.

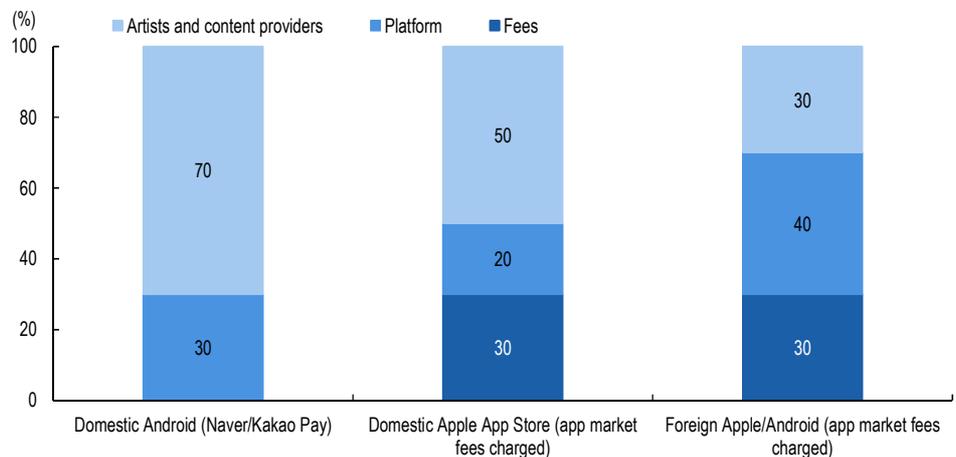
In the ad revenue-driven business models of the past, content creators typically received contribution fees according to their seniority, similar to salaried workers. In today's content monetization model, revenue-sharing schemes are more important than contribution fees, and the rapid expansion of the webtoon market provides strong monetary incentives.

For sales generated in Korea, content creators enjoy a relatively high revenue share. For payments made with NAVER Pay/Kakao Pay, revenue is split between platform operators (30%) and content creators/providers (70%). For payments made through app stores, revenue is shared among app markets (30%), platform operators (20%), and content creators/providers (50%). In overseas markets, revenue is divided among the App Store/Google Play (30%), content creators/providers (30%), and platform operators (40%). (Note that these figures are not definitive and only serve to illustrate that revenue sharing schemes vary by platform and market.)

LINE Manga (LINE) has successfully carved out a place in Japan, and LINE Webtoon (NAVER Webtoon) has done the same thing in the US and Southeast Asia. While they launched their services with Korean webtoon content, LINE Manga and LINE Webtoon have since offered localized content by recruiting local creators through content contests.

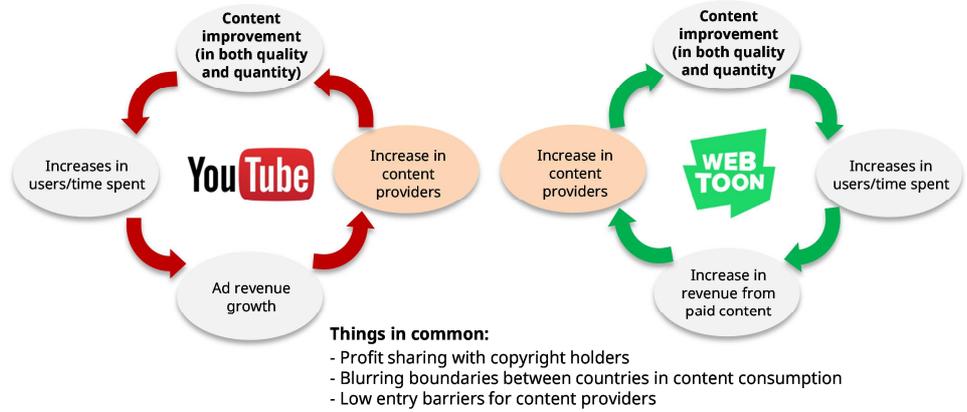
Such contests have been hosted in Korea and abroad, providing amateur content creators an opportunity to win cash prizes and publish their work. LINE Webtoon secured nearly 60,000 works in the US through the user-generated content platform CANVAS, with locally created content accounting for almost 50% and US-based artists making up more than half of the top 20 list. Recently, the firm introduced an ad revenue-sharing program, allowing creators to share ad revenues and publish their content on multiple platforms. LINE Webtoon also launched content contests in Thailand (Challenge League) and Indonesia (Challenge Contest), successfully securing local content and developing a pool of local creators.

Figure 36. Webtoon/webnovel content revenue-sharing schemes



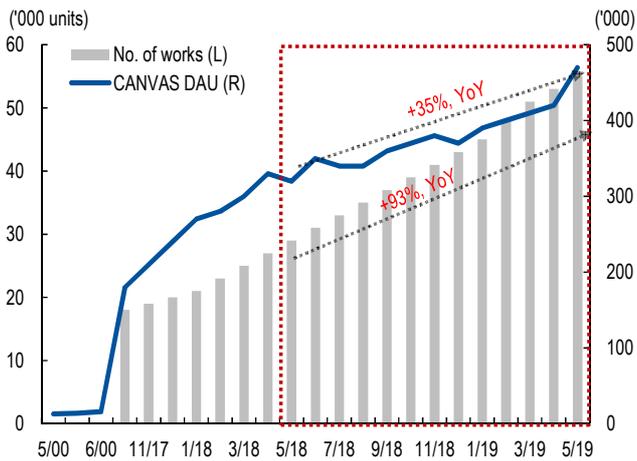
Source: Mirae Asset Daewoo Research

Figure 37. Virtuous cycle in the industry ecosystem: Webtoon vs. YouTube



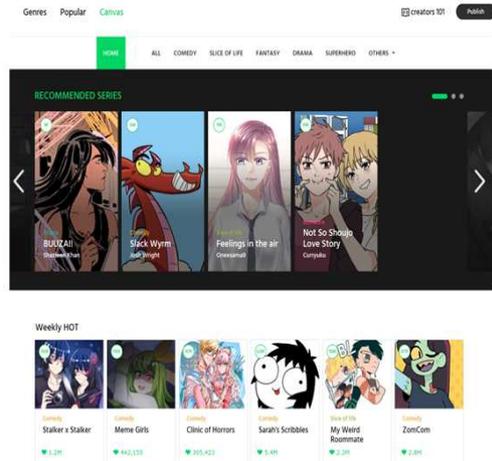
Source: Mirae Asset Daewoo Research

Figure 38. User-generated content platform CANVAS, a key channel to secure content in the US



Source: NAVER, Mirae Asset Daewoo Research

Figure 39. CANVAS, a gateway for new artists



Source: NAVER, Mirae Asset Daewoo Research

Table 3. LINE Webtoon's top 10 titles in Korea (all Korean content) span different genres

	Title	Genre	Author	Country
1	<i>Lookism</i>	Fantasy, drama	Park Tae-ju8n	Korea
2	<i>Love Revolution</i>	Gag, drama	232	Korea
3	<i>True Beauty</i>	Drama, romance	Yaongyi	Korea
4	<i>Yumi's Cells</i>	Daily Life, romance	Lee Dong-geon	Korea
5	<i>Free Draw</i>	Drama	Jeon Seon-uk	Korea
6	<i>Fashion King</i>	Drama	Kian84	Korea
7	<i>Tower of God</i>	Fantasy	SIU	Korea
8	<i>Odd Girl Out</i>	Drama, romance	Morangg	Korea
9	<i>The God of High School</i>	Fantasy	Park Yong-jae	Korea
10	<i>Tales of the Unusual</i>	Omnibus, thriller	Oh Sung-dae	Korea

Source: Company data, Mirae Asset Daewoo Research

Table 4. LINE Webtoon's top 10 titles in the US are dominated by romance/drama/fantasy genres and American content

	Title	Genre	Author	Nationality
1	<i>Lore Olympus</i>	Romance	Rachel Smythe	Local
2	<i>unOrdinary</i>	Fantasy	uru-chan	Local
3	<i>I Love Yoo</i>	Romance	Quimchee	Local
4	<i>Let's Play</i>	Romance	Mongjie	Local
5	<i>SubZero</i>	Romance	Junepurrr	Local
6	<i>Castle Swimmer</i>	Fantasy	Wendy Lian Martin	Local
7	<i>True Beauty</i>	Drama	Yaongyi	Korea
8	<i>Freaking Romance</i>	Romance	Snailords	Local
9	<i>LUMINE</i>	Drama	Emma Krogell	Local
10	<i>Mage & Demon Queen</i>	Fantasy	Color_LES	Local

Source: NAVER, Mirae Asset Daewoo Research

Table 5. LINE Webtoon's top 10 titles in Thailand are dominated by romance and drama genres, and four out of 10 are Korean content

	Title	Genre	Author	Country
1	<i>True Beauty</i>	Romance	Yaongyi	Korea
2	<i>อยู่ๆ ฉันก็กลายเป็นเจ้าหญิง</i>	Fantasy	Plutus/Spoon	Local
3	<i>คุณแม่วัยใส</i>	Drama	theterm	Local
4	<i>Lookism</i>	Drama	Park Tae-jun	Korea
5	<i>ฟ้าองค์รัชทายาทหญิงจำเป็น</i>	Fantasy	lonely cat	Local
6	<i>Freaking Romance</i>	Romance	Snailords	Local
7	<i>Take My Money รักนี้...มีประโยชน์</i>	Romance	AlohaDRY	Local
8	<i>Murderstagram</i>	Thriller	Ryung	Korea
9	<i>ร้านดอกไม้ต้องห้ามของเวन्दี้</i>	Fantasy	Bize/Sizh	Local
10	<i>What Kind of Empress Is This?</i>	Romance	Jeon Hyeon-Seo/Eun-yeong	Korea

Source: NAVER, Mirae Asset Daewoo Research

Table 6. LINE Webtoon's top 10 titles in Taiwan are dominated by romance and drama, and six out of 10 are Korean content

	Title	Genre	Author	Nationality
1	<i>True Beauty</i>	Drama	Yaongyi	Korea
2	<i>Lookism</i>	Drama	Park Tae-jun	Korea
3	<i>某天成為公主</i>	Drama	Plutus/Spoon	Local
4	<i>So I Married an Anti-Fan</i>	Romance	Jaerim	Korea
5	<i>微不幸劇場</i>	Gag	微疼	Local
6	<i>Hell Is Other People</i>	Thriller	Kim Yong-ki	Korea
7	<i>Tales of the Unusual</i>	Thriller	Oh Sung-dae	Korea
8	<i>海線電車</i>	Romance	柚佳	Local
9	<i>1加1</i>	Romance	寶阿	Local
10	<i>Odd Girl Out</i>	Drama, Romance	Morangg	Korea

Source: NAVER, Mirae Asset Daewoo Research

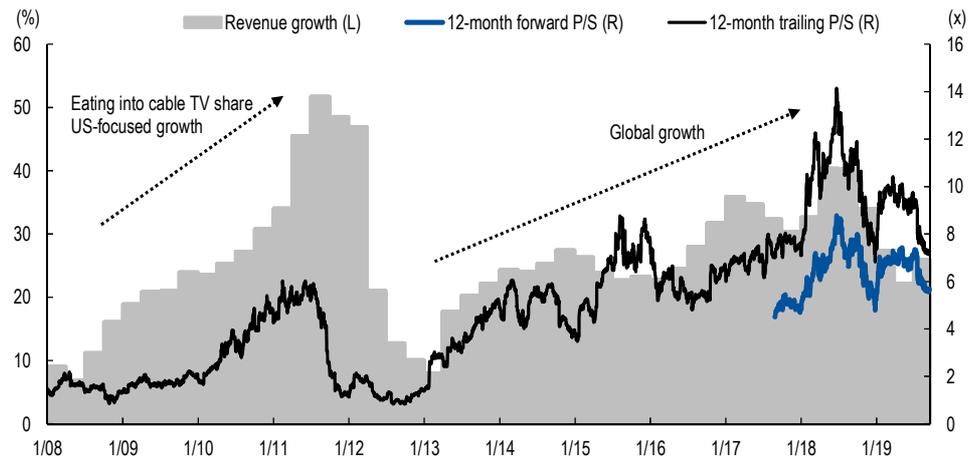
Applying target P/S of 7x for webtoons in light of strong revenue growth and rising margins

For webtoon platforms, we applied a target P/S of 7x, which represents Netflix’s average multiple during its global expansion phase. We believe the valuation is justified, given that: 1) major webtoon platforms are now pursuing global monetization, after their successful efforts to attract users with free offerings; and 2) the quantity and quality of content should improve over the long term on the back of a robust ecosystem.

NAVER Webtoon, the world’s leading webtoon portal, is delivering strong revenue growth due to its efforts to monetize its 20mn MAU in Korea and 8mn MAU in the US. We think NAVER Webtoon stands to benefit the most from webtoon demand growth. Kakao, which already has a successful revenue model in Korea, is tightening its grip on the platform markets in Japan and Indonesia. And given its focus on securing original content IPs, Kakao is favorably positioned for the likely expansion of webtoons into different content formats over the long term.

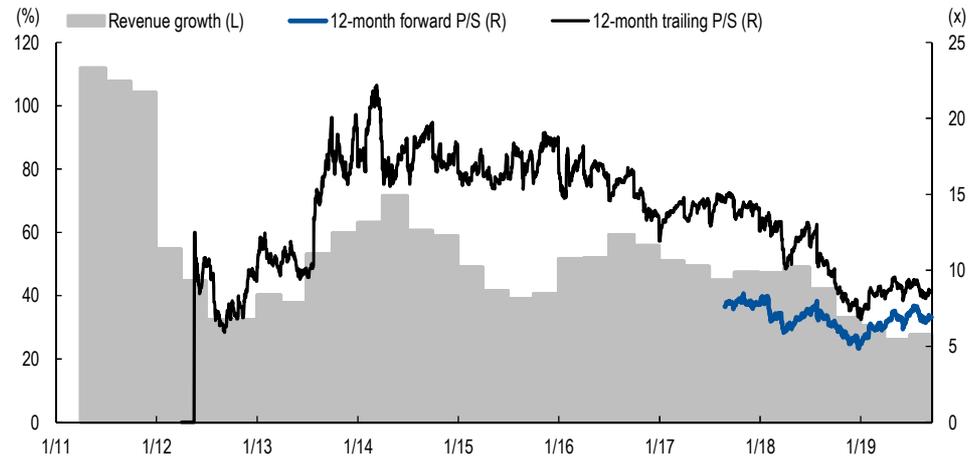
We expect strong operating leverage effects to support webtoon platform operators’ valuations or help them re-rate higher. Assuming fixed costs increase 10% annually and assuming content revenue growth is strong enough to make fixed costs negligible, we estimate that gross margins could theoretically reach as high as 73% in Korea and 62% overseas, based on revenue-sharing ratios.

Figure 40. Netflix’s valuation re-rating coincided with revenue growth during the global expansion phase



Source: Bloomberg, Mirae Asset Daewoo Research

Figure 41. Facebook traded at a P/S of over 10x for an extended period thanks to high margins



Source: Bloomberg, Mirae Asset Daewoo Research

IV. Webtoon market growing rapidly despite the early stage of monetization

YoY revenue growth in August: NAVER Webtoon +175%; LINE Manga +53%; Piccoma +113%

Given the early stage of monetization, information about the webtoon industry has been limited, making it difficult to quantify the market size and performance of each operator. Even in Korea, the birthplace of webtoons, only two to three years have passed since the incorporation of webtoon providers. The information disclosed to the public is thus limited, and investors have mainly relied on figures occasionally announced in media reports.

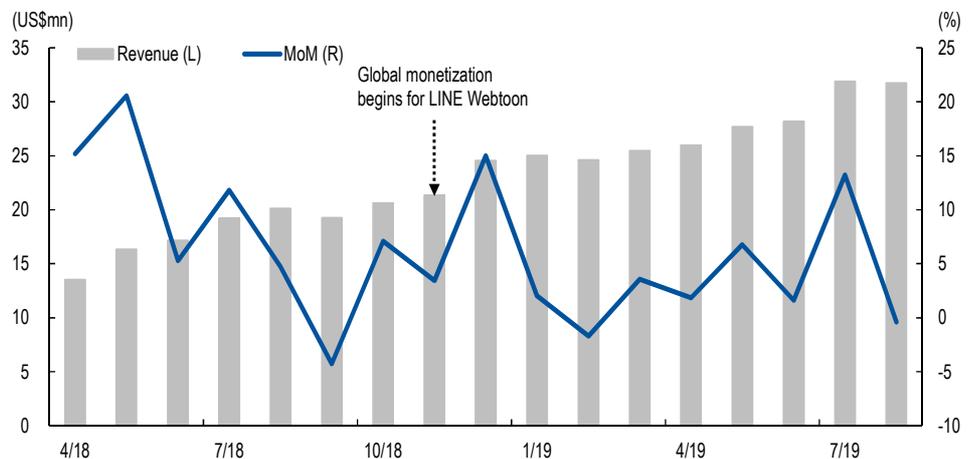
Now, however, it is possible to make projections about webtoon transaction volume and revenue based on app market analysis. For companies like Lezhin Comics and Kakao, global monetization began around end-2015. NAVER Webtoon has also been generating revenues in the US and Southeast Asia since November 2018.

Sensor Tower estimates the combined global transaction value of Korean webtoon mobile apps in August at US\$31.78mn (+58% YoY). By app, the estimated transaction value is largest for LINE Manga (US\$18.76mn; +53% YoY), followed by Piccoma (US\$7.94mn; +113% YoY), NAVER Webtoon (LINE Webtoon; US\$2.39mn; +175% YoY), KakaoPage (US\$1.69mn; -29% YoY), NAVER Series (US\$710,000; +70% YoY), and Lezhin Comics (US\$190,000; -49%).

NAVER Webtoon (including LINE Webtoon for overseas and NAVER Series) and Piccoma have been displaying marked revenue growth. NAVER Webtoon, in particular, has seen a surge in revenue after applying a monetization model to its US and Southeast Asian operations (since November 2018). Meanwhile, peers that introduced monetization models earlier have seen their global revenue growth begin to slow.

It is difficult to accurately estimate webtoon revenue, as a number of variables differ across countries and platforms. Such variables include app store shares (Android accounts for a notably high share in Korea), app market fees (e.g., no fees are charged for transactions made via NAVER Pay or Kakao Pay), the profit-sharing ratio with writers, and the revenue recognition method (gross vs. net accounting). Deriving more accurate figures would thus require adjustments by country and platform. That said, it is clear that revenue is on an uptrend in countries where monetization has begun. We believe webtoon platforms are finally capitalizing on the large user bases they have built over time by offering free content, and the extent of revenue growth by market is worth tracking.

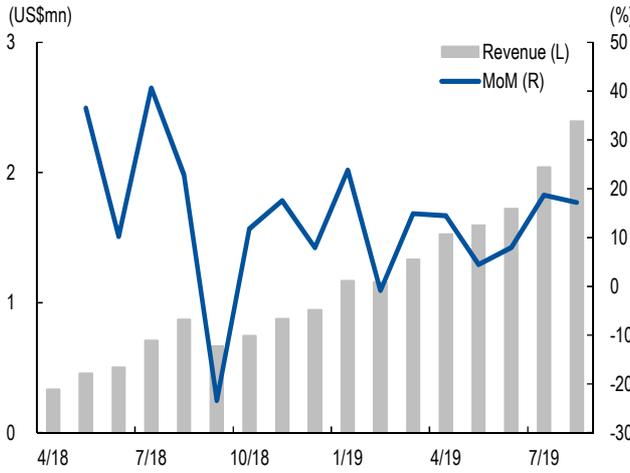
Figure 42. Mobile webtoon app revenue is growing rapidly; +58% YoY in August



Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.

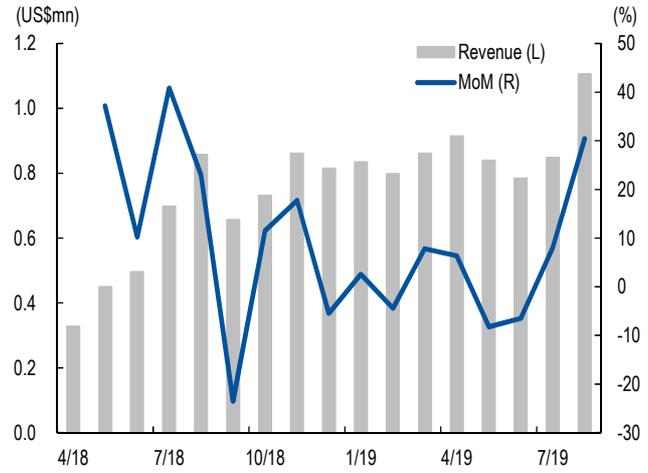
Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 43. NAVER Webtoon's global revenue: +175% in August



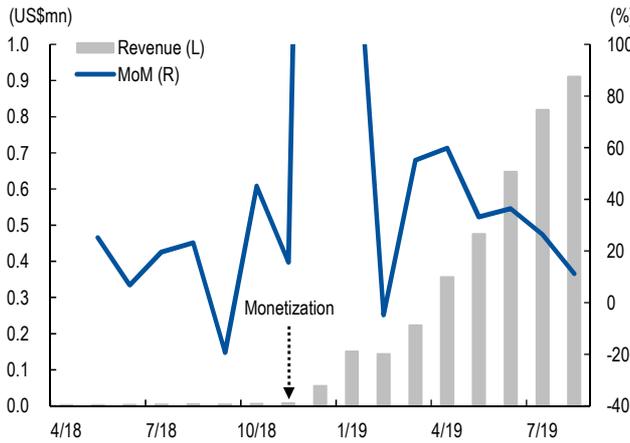
Note: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 44. NAVER Webtoon's domestic revenue: +29% YoY in August



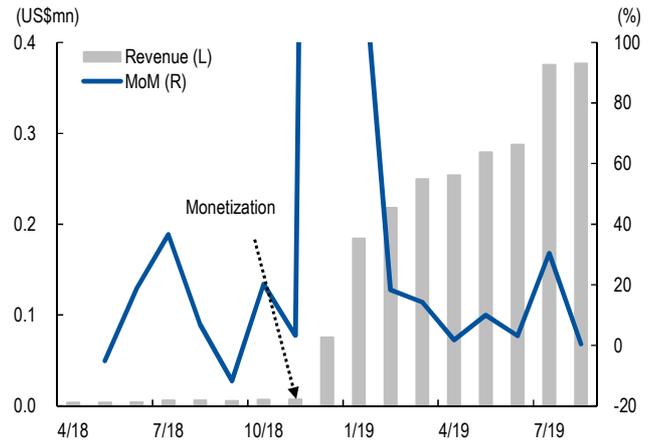
Note: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 45. NAVER Webtoon's US revenue: +15,790% YoY in August



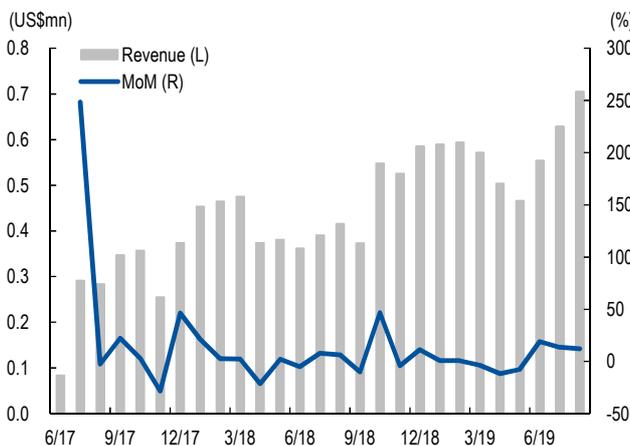
Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 46. NAVER Webtoon's revenue from other regions: +5,551% YoY in August



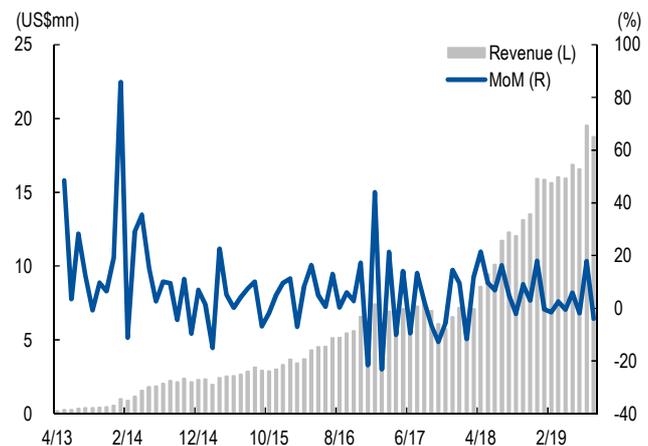
Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 47. NAVER Series' global revenue: +70% YoY in August



Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

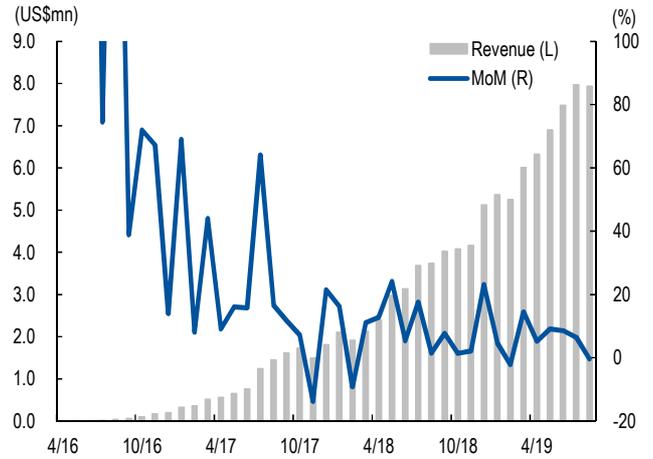
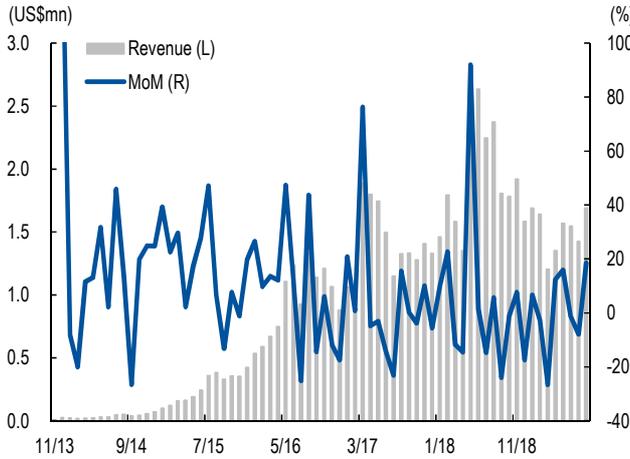
Figure 48. LINE Manga's Japan revenue: +53% YoY in August



Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 49. KakaoPage's domestic revenue: -29% YoY in August

Figure 50. Piccoma's Japan revenue: +113% YoY in August

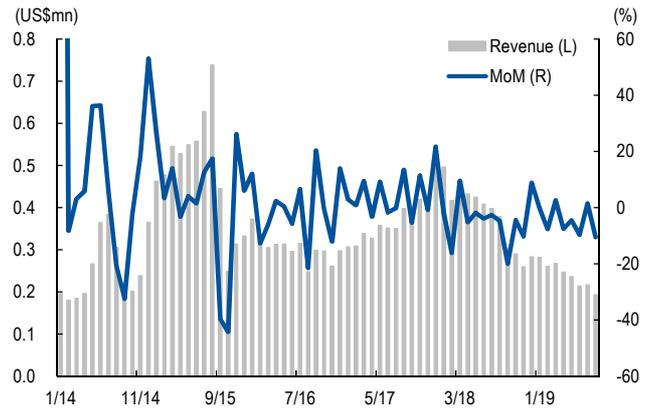
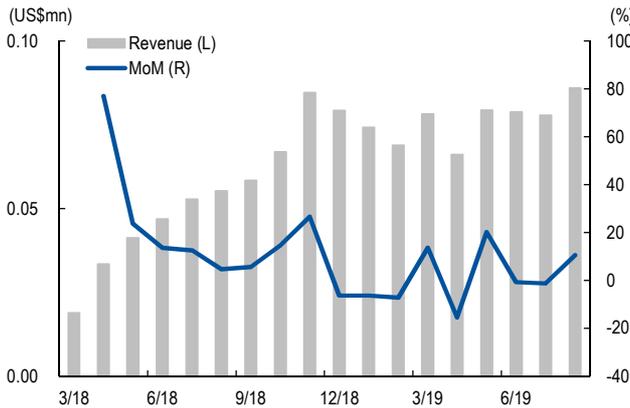


Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 51. Webcomics' (Kakao's) Indonesia revenue in August: +56% YoY

Figure 52. Lezhin Comics' global revenue: -49% YoY in August

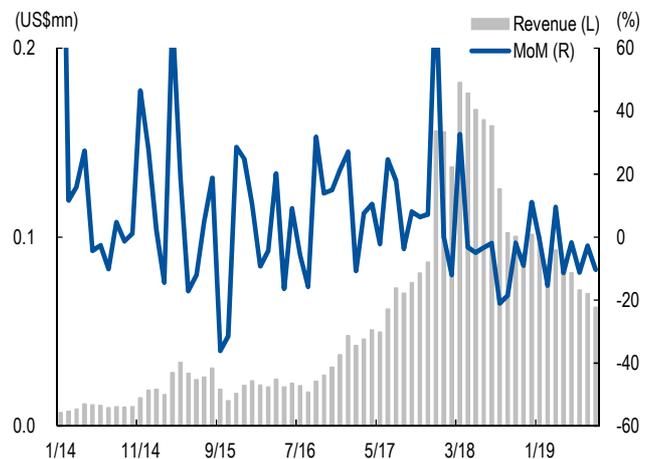
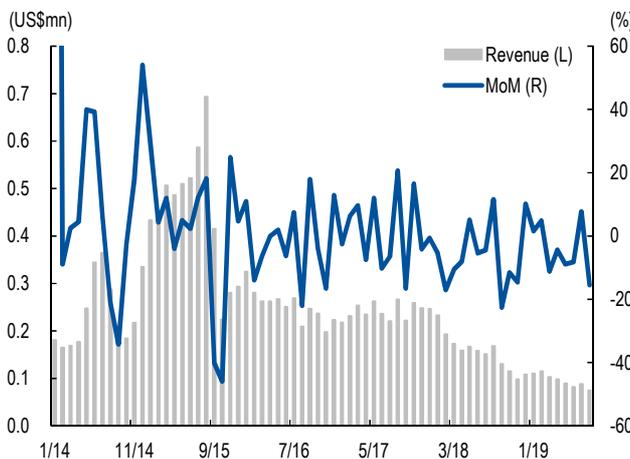


Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 53. Lezhin Comics' domestic revenue: -56% YoY in August

Figure 54. Lezhin Comics' US revenue: -50% YoY in August



Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

Notes: A number of variables differ across countries and platforms; thus, this figure should be used for overall trend analysis rather than absolute value comparison.
Source: Sensor Tower, Mirae Asset Daewoo Research

NAVER, operator of the world's largest webtoon platform, to benefit from demand growth

Amid rapidly growing demand for webtoons around the world, we expect the value of NAVER Webtoon to come into focus going forward. NAVER Webtoon is the largest webtoon platform by revenue and users across Korea, Japan, Taiwan, the US, and major countries in Southeast Asia (e.g., Thailand and Indonesia). The service is in the early stages of monetizing its 55mn MAU (accumulated over the past decade), and the results have been materializing in recent months. The webtoon service reached breakeven domestically in late 2018 and is expected to turn a profit globally in late 2019. With the platform ecosystem taking shape, the webtoon business is expected to enjoy long-term growth, backed by its strong profit model.

According to Sensor Tower, NAVER Webtoon's global transaction volume surged 175% YoY in August. By region, transaction volume was up 29% in Korea, 53% in Japan (LINE Manga), 15,790% in the US, and 5,551% in other regions. Webtoon consumption, exemplifying the "snack culture" that arose in Korea during the smartphone age, is spreading beyond Japan and Southeast Asia to the US and Europe.

Webtoons have a superior profit model compared to other content formats. The adoption of microtransactions means webtoons have the potential to generate higher ARPPU than Netflix (monthly subscription), YouTube (ads), or Spotify (ads and subscriptions). We believe NAVER Webtoon's ARPPU, which currently stands at a mere ₩3,681, could rapidly reach ₩10,000 (the level of music and video streaming services). In terms of user engagement indicators (time spent, frequency, retention, etc.), webtoons in Korea have already surpassed music streaming services and are now comparable to video streaming services.

We value NAVER Webtoon at ₩5.7tr, which we derived by applying a P/S of 7x to our 2020-21 average transaction volume forecast. Our target multiple represents Netflix's average multiple during its global expansion phase. We highlight that 1) domestic webtoon platforms are now in the early stages of monetizing their sizable MAU; and 2) content quality is likely to improve over the long term on the back of a robust ecosystem.

Table 7. NAVER Webtoon: Annual earnings

(Wbn, mn persons, %, W)

	2017	2018	2019F	2020F	2021F	2022F
Revenue	34	72	170	339	584	842
NAVER Webtoon + NAVER Series		46	137	300	540	795
Korea		46	82	104	125	144
US		0	39	158	347	555
Other		0	17	38	69	96
Advertising/IP/Other		26	32	39	43	48
* Line Manga (not included in above figures)		85	131	162	185	204
Operating expenses	72	126	201	292	400	532
Operating profit	-38	-54	-32	47	184	310
OP margin (%)	-111.7	-75.4	-18.7	14.0	31.5	36.8
Key assumptions						
Transaction volume		141	333	617	1,018	1,437
MAU		45.9	56.4	65.6	73.6	81.6
Paid user ratio		11.9	15.1	17.2	19.8	22.5
Monthly ARPPU		2,147	3,269	4,567	5,833	6,528
Transaction value growth (YoY)			136.3	85.1	65.0	41.2

Notes: All figures excluding annual revenue and operating profit are based on our estimates.

Source: Mirae Asset Daewoo Research estimates

Table 8. NAVER Webtoon: Quarterly earnings

(Wbn, mn persons, %, W)

	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19F	4Q19F	1Q20F	2Q20F	3Q20F	4Q20F
Revenue	14	16	19	23	25	40	48	57	63	75	92	109
NAVER Webtoon +												
NAVER Series	9	11	12	15	17	32	40	48	54	66	82	98
Korea	9	10	11	14	13	21	23	25	22	25	28	29
US	0	0	0	0	2	7	12	18	25	32	44	57
Other	0	0	0	0	2	4	5	6	7	9	10	12
Advertising/IP/Other	5	6	8	8	8	8	8	8	9	10	10	11
* Line Manga (not included in above figures)	14	18	25	27	31	32	34	35	38	40	42	42
Operating expenses	24	28	31	42	40	49	54	58	61	68	77	85
Operating profit	-10	-12	-12	-19	-15	-9	-6	-1	2	7	15	24
OP margin (%)	-73.4	-76.9	-65.1	-84.2	-60.9	-21.9	-13.1	-2.6	2.8	9.4	16.0	21.8
Key assumptions												
Transaction value	30	32	35	45	46	80	96	111	116	138	167	195
MAU	39.3	41.3	43.5	45.9	48.6	51.5	53.8	56.4	58.7	60.8	63.1	65.6
Paid user ratio	7.6	7.6	7.8	11.9	13.7	14.1	14.6	15.1	15.6	16.1	16.6	17.2
Monthly ARPPU	3,346	3,349	3,393	2,717	2,308	3,681	4,087	4,348	4,219	4,709	5,316	5,788
Transaction value growth (YoY)					53.2	153.3	177.2	148.3	151.5	72.5	74.0	76.4

Note: All figures excluding annual revenue and operating profit are based on our estimates

Source: Mirae Asset Daewoo Research estimates

Table 9. NAVER Webtoon's revenue breakdown by country (excluding NAVER Series)

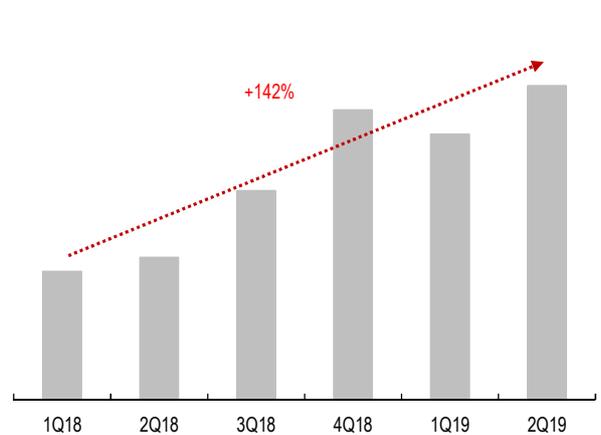
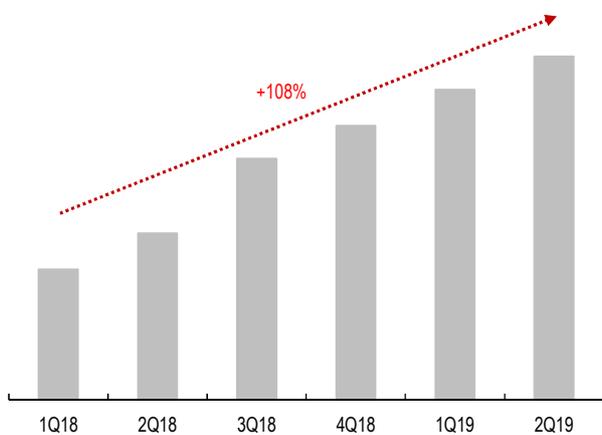
	4/18	5/18	6/18	7/18	8/18	9/18	10/18	11/18	12/18	1/19	2/19	3/19	4/19	5/19	6/19	7/19
Korea	99.4%	99.5%	99.5%	99.5%	99.6%	99.5%	99.4%	99.5%	95.3%	89.1%	87.9%	85.7%	83.2%	78.6%	73.4%	70.1%
US	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.3%	2.0%	4.9%	4.8%	6.7%	9.8%	13.5%	18.4%	20.5%
Thailand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	2.4%	3.1%	3.1%	2.9%	3.1%	3.1%	3.4%
Taiwan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	1.5%	2.0%	2.0%	1.8%	1.9%	1.5%	2.3%
Indonesia	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.4%	0.6%	0.7%	0.6%	0.6%	0.5%	0.6%
Other	0.4%	0.2%	0.3%	0.3%	0.2%	0.3%	0.3%	0.3%	0.7%	1.7%	1.6%	1.7%	1.8%	2.4%	3.0%	3.1%

Notes: Figures above are based on Sensor Tower estimates and could differ from actual revenue and transaction values

Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 55. Domestic/overseas paid content transaction value

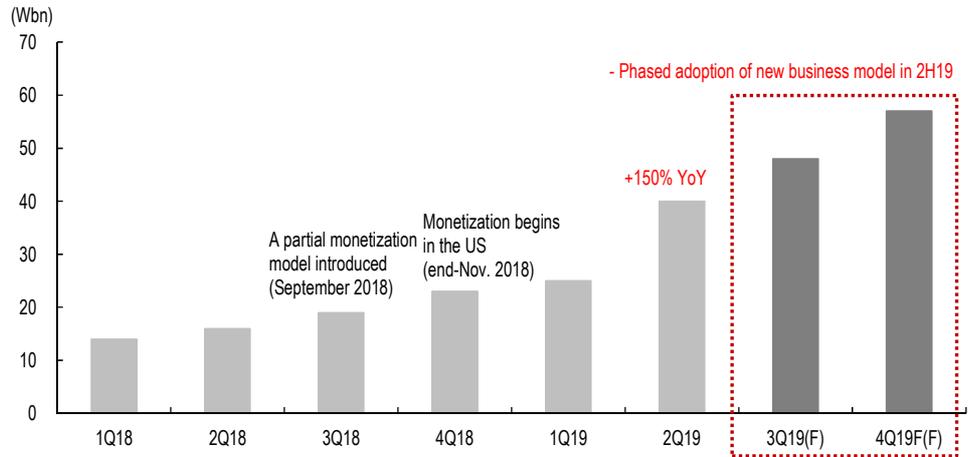
Figure 56. Advertising/IP revenues



Source: NAVER, Mirae Asset Daewoo Research

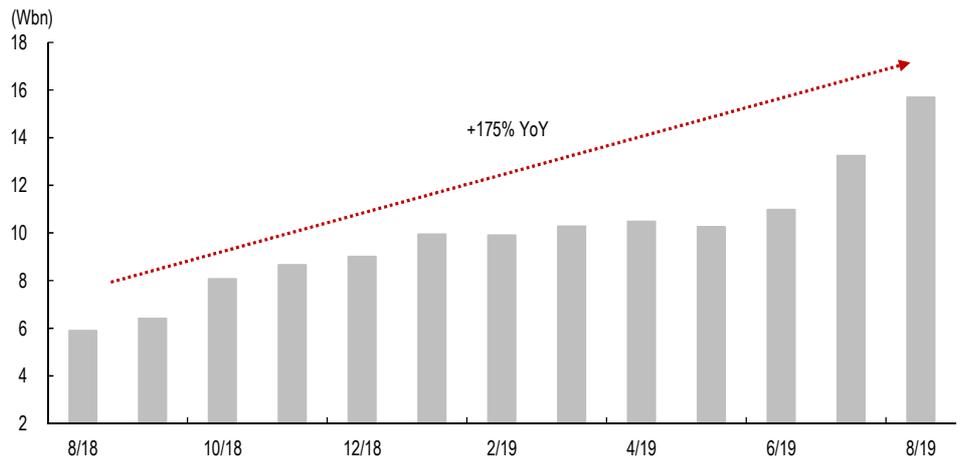
Source: NAVER, Mirae Asset Daewoo Research

Figure 57. NAVER Webtoon's quarterly revenue



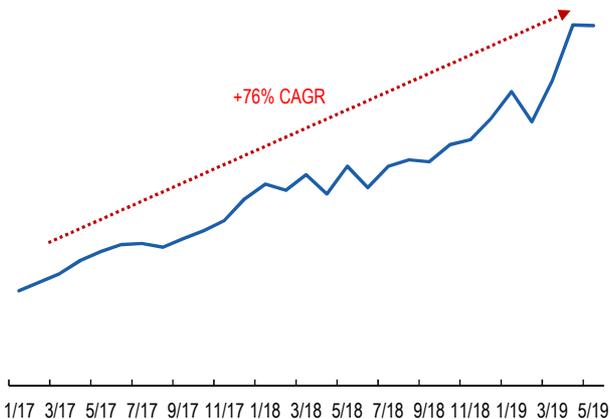
Notes: Figures above are based on Sensor Tower estimates and could differ from actual revenue and transaction values
 Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 58. NAVER Webtoon's monthly revenue



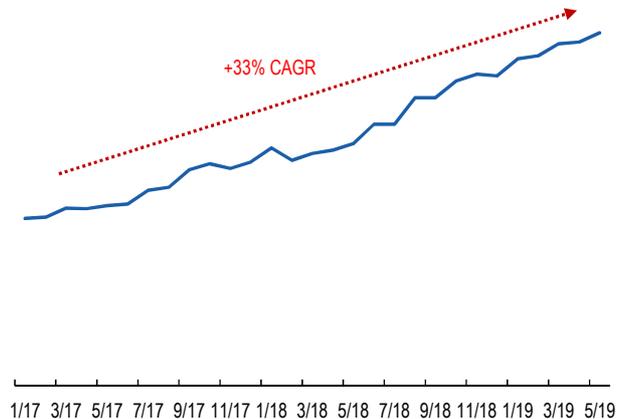
Notes: Figures above are based on Sensor Tower estimates and could differ from actual revenue and transaction values
 Source: Sensor Tower, Mirae Asset Daewoo Research

Figure 59. LINE Webtoon's MAU in the US



Source: NAVER, Mirae Asset Daewoo Research

Figure 60. LINE Manga's MAU in Japan



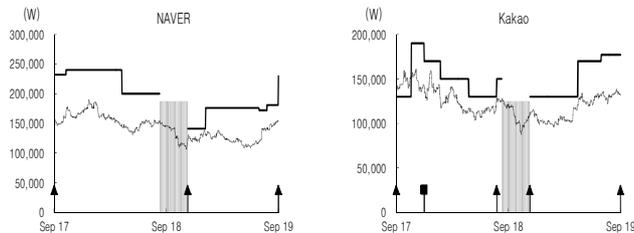
Source: NAVER, Mirae Asset Daewoo Research

APPENDIX 1

Important Disclosures & Disclaimers

2-Year Rating and Target Price History

Company (Code)	Date	Rating	Target Price	Company (Code)	Date	Rating	Target Price	
NAVER (035420)					05/01/2019	Buy	170,000	
					11/26/2018	Buy	130,000	
		09/17/2019	Buy	230,000		08/27/2018	No Coverage	
		08/11/2019	Buy	181,000		08/10/2018	Buy	150,000
		07/16/2019	Buy	172,000		05/11/2018	Trading Buy	130,000
		01/23/2019	Buy	176,000		02/08/2018	Trading Buy	150,000
		11/26/2018	Buy	141,000		12/17/2017	Trading Buy	170,000
		08/27/2018	No Coverage			11/05/2017	Buy	190,000
		04/26/2018	Buy	200,000		08/10/2017	Buy	130,000
		10/26/2017	Buy	240,000				
		04/04/2017	Buy	232,000				
	Kakao (035720)							
		07/16/2019	Buy	177,000				



Stock Ratings

Buy	: Relative performance of 20% or greater
Trading Buy	: Relative performance of 10% or greater, but with volatility
Hold	: Relative performance of -10% and 10%
Sell	: Relative performance of -10%

Industry Ratings

Overweight	: Fundamentals are favorable or improving
Neutral	: Fundamentals are steady without any material changes
Underweight	: Fundamentals are unfavorable or worsening

Ratings and Target Price History (Share price (—), Target price (—), Not covered (≡), Buy (▲), Trading Buy (■), Hold (●), Sell (◆))

* Our investment rating is a guide to the relative return of the stock versus the market over the next 12 months.

* Although it is not part of the official ratings at Mirae Asset Daewoo Co., Ltd., we may call a trading opportunity in case there is a technical or short-term material development.

* The target price was determined by the research analyst through valuation methods discussed in this report, in part based on the analyst's estimate of future earnings.

* The achievement of the target price may be impeded by risks related to the subject securities and companies, as well as general market and economic conditions.

Equity Ratings Distribution & Investment Banking Services

	Buy	Trading Buy	Hold	Sell
Equity Ratings Distribution	83.14%	8.72%	8.14%	0.00%
Investment Banking Services	77.78%	11.11%	11.11%	0.00%

* Based on recommendations in the last 12-months (as of June 30, 2019)

Disclosures

As of the publication date, Mirae Asset Daewoo Co., Ltd. and/or its affiliates own 1% or more of NAVER's shares outstanding.

As of the publication date, Mirae Asset Daewoo Co., Ltd. has acted as a liquidity provider for equity-linked warrants backed by shares of NAVER, Kakao as an underlying asset; other than this, Mirae Asset Daewoo has no other special interests in the covered companies.

Analyst Certification

The research analysts who prepared this report (the "Analysts") are registered with the Korea Financial Investment Association and are subject to Korean securities regulations. They are neither registered as research analysts in any other jurisdiction nor subject to the laws or regulations thereof. Each Analyst responsible for the preparation of this report certifies that (i) all views expressed in this report accurately reflect the personal views of the Analyst about any and all of the issuers and securities named in this report and (ii) no part of the compensation of the Analyst was, is, or will be directly or indirectly related to the specific recommendations or views contained in this report. Mirae Asset Daewoo Co., Ltd. ("Mirae Asset Daewoo") policy prohibits its Analysts and members of their households from owning securities of any company in the Analyst's area of coverage, and the Analysts do not serve as an officer, director or advisory board member of the subject companies. Except as otherwise specified herein, the Analysts have not received any compensation or any other benefits from the subject companies in the past 12 months and have not been promised the same in connection with this report. Like all employees of Mirae Asset Daewoo, the Analysts receive compensation that is determined by overall firm profitability, which includes revenues from, among other business units, the institutional equities, investment banking, proprietary trading and private client division. At the time of publication of this report, the Analysts do not know or have reason to know of any actual, material conflict of interest of the Analyst or Mirae Asset Daewoo except as otherwise stated herein.

Disclaimers

This report was prepared by Mirae Asset Daewoo, a broker-dealer registered in the Republic of Korea and a member of the Korea Exchange. Information and opinions contained herein have been compiled in good faith and from sources believed to be reliable, but such information has not been independently verified and Mirae Asset Daewoo makes no guarantee, representation or warranty, express or implied, as to the fairness, accuracy, completeness or correctness of the information and opinions contained herein or of any translation into English from the Korean language. In case of an English translation of a report prepared in the Korean language, the original Korean language report may have been made available to investors in advance of this report.

The intended recipients of this report are sophisticated institutional investors who have substantial knowledge of the local business environment, its common practices, laws and accounting principles and no person whose receipt or use of this report would violate any laws or regulations or subject Mirae Asset Daewoo or any of its affiliates to registration or licensing requirements in any jurisdiction shall receive or make any use hereof.

This report is for general information purposes only and it is not and shall not be construed as an offer or a solicitation of an offer to effect transactions in any securities or other financial instruments. The report does not constitute investment advice to any person and such person shall not be treated as a client of Mirae Asset Daewoo by virtue of receiving this report. This report does not take into account the particular investment objectives, financial situations, or needs of individual clients. The report is not to be relied upon in substitution for the exercise of independent judgment. Information and opinions contained herein are as of the date hereof and are subject to change without notice. The price and value of the investments referred to in this report and the income from them may depreciate or appreciate, and investors may incur losses on investments. Past performance is not a guide to future performance. Future returns are not guaranteed, and a loss of original capital may occur. Mirae Asset Daewoo, its affiliates and their directors, officers, employees and agents do not accept any liability for any loss arising out of the use hereof.

Mirae Asset Daewoo may have issued other reports that are inconsistent with, and reach different conclusions from, the opinions presented in this report. The reports may reflect different assumptions, views and analytical methods of the analysts who prepared them. Mirae Asset Daewoo may make investment decisions that are inconsistent with the opinions and views expressed in this research report. Mirae Asset Daewoo, its affiliates and their directors, officers, employees and agents may have long or short positions in any of the subject securities at any time and may make a purchase or sale, or offer to make a purchase or sale, of any such securities or other financial instruments from time to time in the open market or otherwise, in each case either as principals or agents. Mirae Asset Daewoo and its affiliates may have had, or may be expecting to enter into, business relationships with the subject companies to provide investment banking, market-making or other financial services as are permitted under applicable laws and regulations.

No part of this document may be copied or reproduced in any manner or form or redistributed or published, in whole or in part, without the prior written consent of Mirae Asset Daewoo.

Distribution

United Kingdom: This report is being distributed by Mirae Asset Securities (UK) Ltd. in the United Kingdom only to (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order"), and (ii) high net worth companies and other persons to whom it may lawfully be communicated, falling within Article 49(2)(A) to (E) of the Order (all such persons together being referred to as "Relevant Persons"). This report is directed only at Relevant Persons. Any person who is not a Relevant Person should not act or rely on this report or any of its contents.

United States: Mirae Asset Daewoo is not a registered broker-dealer in the United States and, therefore, is not subject to U.S. rules regarding the preparation of research reports and the independence of research analysts. This report is distributed in the U.S. by Mirae Asset Securities (USA) Inc., a member of FINRA/SIPC, to "major U.S. institutional investors" in reliance on the exemption from registration provided by Rule 15a-6(b)(4) under the U.S. Securities Exchange Act of 1934, as amended. All U.S. persons that receive this document by their acceptance hereof represent and warrant that they are a major U.S. institutional investor and have not received this report under any express or implied understanding that they will direct commission income to Mirae Asset Daewoo or its affiliates. Any U.S. recipient of this document wishing to effect a transaction in any securities discussed herein should contact and place orders with Mirae Asset Securities (USA) Inc. Mirae Asset Securities (USA) Inc. accepts responsibility for the contents of this report in the U.S., subject to the terms hereof, to the extent that it is delivered to a U.S. person other than a major U.S. institutional investor. Under no circumstances should any recipient of this research report effect any transaction to buy or sell securities or related financial instruments through Mirae Asset Daewoo. The securities described in this report may not have been registered under the U.S. Securities Act of 1933, as amended, and, in such case, may not be offered or sold in the U.S. or to U.S. persons absent registration or an applicable exemption from the registration requirements.

Hong Kong: This report is distributed in Hong Kong by Mirae Asset Securities (HK) Limited, which is regulated by the Hong Kong Securities and Futures Commission. The contents of this report have not been reviewed by any regulatory authority in Hong Kong. This report is for distribution only to professional investors within the meaning of Part I of Schedule 1 to the Securities and Futures Ordinance of Hong Kong (Cap. 571, Laws of Hong Kong) and any rules made thereunder and may not be redistributed in whole or in part in Hong Kong to any person.

All Other Jurisdictions: Customers in all other countries who wish to effect a transaction in any securities referenced in this report should contact Mirae Asset Daewoo or its affiliates only if distribution to or use by such customer of this report would not violate applicable laws and regulations and not subject Mirae Asset Daewoo and its affiliates to any registration or licensing requirement within such jurisdiction.

Mirae Asset Daewoo International Network

Mirae Asset Daewoo Co., Ltd. (Seoul)
Global Equity Sales Team
Mirae Asset Center 1 Building
26 Eulji-ro 5-gil, Jung-gu, Seoul 04539
Korea

Tel: 82-2-3774-2124

Mirae Asset Securities (USA) Inc.
810 Seventh Avenue, 37th Floor
New York, NY 10019
USA

Tel: 1-212-407-1000

PT. Mirae Asset Sekuritas Indonesia
Equity Tower Building Lt. 50
Sudirman Central Business District
Jl. Jend. Sudirman, Kav. 52-53 Jakarta Selatan
12190
Indonesia
Tel: 62-21-515-3281

Mirae Asset Securities Mongolia UTsk LLC
#406, Blue Sky Tower, Peace Avenue 17
1 Khoroo, Sukhbaatar District
Ulaanbaatar 14240
Mongolia

Tel: 976-7011-0806

Shanghai Representative Office
38T31, 38F, Shanghai World Financial Center
100 Century Avenue, Pudong New Area Shanghai
200120
China

Tel: 86-21-5013-6392

Mirae Asset Securities (HK) Ltd.
Suites 1109-1114, 11th Floor
Two International Finance Centre
8 Finance Street, Central
Hong Kong
China
Tel: 852-2845-6332

Mirae Asset Wealth Management (USA) Inc.
555 S. Flower Street, Suite 4410,
Los Angeles, California 90071
USA

Tel: 1-213-262-3807

Mirae Asset Securities (Singapore) Pte. Ltd.
6 Battery Road, #11-01
Singapore 049909
Republic of Singapore

Tel: 65-6671-9845

Mirae Asset Investment Advisory (Beijing) Co., Ltd
2401B, 24th Floor, East Tower, Twin Towers
B12 Jianguomenwai Avenue, Chaoyang District
Beijing 100022
China

Tel: 86-10-6567-9699

Ho Chi Minh Representative Office
7F, Saigon Royal Building
91 Pasteur St.
District 1, Ben Nghe Ward, Ho Chi Minh City
Vietnam

Tel: 84-8-3910-7715

Mirae Asset Securities (UK) Ltd.
41st Floor, Tower 42
25 Old Broad Street,
London EC2N 1HQ
United Kingdom

Tel: 44-20-7982-8000

Mirae Asset Wealth Management (Brazil) CCTVM
Rua Funchal, 418, 18th Floor, E-Tower Building Vila
Olimpia
Sao Paulo - SP
04551-060
Brasil
Tel: 55-11-2789-2100

Mirae Asset Securities (Vietnam) LLC
7F, Saigon Royal Building
91 Pasteur St.
District 1, Ben Nghe Ward, Ho Chi Minh City
Vietnam

Tel: 84-8-3911-0633 (ext.110)

Beijing Representative Office
2401A, 24th Floor, East Tower, Twin Towers
B12 Jianguomenwai Avenue, Chaoyang District
Beijing 100022
China

Tel: 86-10-6567-9699 (ext. 3300)