

GRAVITY Co., Ltd.

Form 20-F

April 26, 2019

As filed with the Securities and Exchange Commission on April 26, 2019

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 20-F

(Mark One)

REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934

or

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2018

or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

or

SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Commission file number: 000 51138

GRAVITY CO., LTD.

(Exact name of registrant as specified in its charter)

N/A

(Translation of registrant's name into English)

The Republic of Korea

(Jurisdiction of incorporation or organization)

15F, 396 World Cup buk ro, Mapo gu,

Seoul 121 795, Korea

(Address of principal executive offices)

Heung Gon Kim

Chief Financial Officer

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Seoul 121 795, Korea

Telephone: 82 2 2132 7000

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(Name, Telephone, E mail and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act:

| Title of Each Class                                                     | Name of Each Exchange on Which Registered |
|-------------------------------------------------------------------------|-------------------------------------------|
| Common stock, par value Won 500 per share*                              | The NASDAQ Global Market                  |
| American depositary shares, each representing one share of common stock |                                           |

\*Not for trading, but only in connection with the listing of American depositary shares on the NASDAQ Global Market pursuant to the requirements of the Securities and Exchange Commission.

Securities registered or to be registered pursuant to Section 12(g) of the Act: None

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: None

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report: Shares, par value Won 500: 6,948,900

Indicate by check mark if the registrant is a well known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. Yes No

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Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer  
Non-accelerated filer Emerging growth company

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards<sup>†</sup> provided pursuant to Section 13(a) of the Exchange Act.

<sup>†</sup>The term “new or revised financial accounting standard” refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP International Financial Reporting Standards as issued by the International Accounting Standards Board Other

If “Other” has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow. Item 17 Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

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## CERTAIN DEFINED TERMS

Unless the context otherwise requires, references in this annual report on Form 20-F (this “Annual Report”) to:

- “ADRs” are to the American depositary receipts that evidence our ADSs;
- “ADSs” are to our American depositary shares, each of which represents one share of our common stock;
- “China” or the “PRC” are to the People’s Republic of China (excluding, for the purposes of this Annual Report, Taiwan, Hong Kong and Macau, unless specifically indicated otherwise);
- “Chinese Yuan” are to the currency of China;
- “EUR” or “Euro” are to the currency of the Eurozone consisting of Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain;
- “Gravity,” “the Company,” “we,” “us,” “our,” or “our company” are to Gravity Co., Ltd. and our subsidiaries, except as otherwise indicated or required by context;
- “Hong Kong” are to the Hong Kong Special Administrative Region of the PRC;
- “Japanese Yen” or “JPY” are to the currency of Japan;
- “Korea” are to the Republic of Korea;
- “Macau” are to the Macau Special Administrative Region of the PRC;
- “NT dollar” or “NT\$” are to the currency of Taiwan;
- “Taiwan” are to Taiwan, the Republic of China;
- “Thai Baht” are to the currency of the Kingdom of Thailand;
- “US\$,” “U.S. dollar,” or “Dollar” are to the currency of the United States of America; and
- “Won,” “Korean Won,” or “W” are to the currency of Korea.

For your convenience, and unless otherwise stated, this Annual Report contains translations of certain Won amounts into U.S. dollars at the noon buying rate in New York City for cable transfers in Korean Won as certified by the Federal Reserve Bank of New York for customs purposes in effect on December 31, 2018, which was Won 1,112.85 to US\$1.00. No assurance is given that any Won or Dollar amounts could have been or may now be converted into Dollars or Won, as the case may be, at such rate, or any other rate, or at all.

Discrepancies in tables between totals and sums of the amounts listed are due to rounding.

## FORWARD LOOKING STATEMENTS

This Annual Report for the year ended December 31, 2018 contains “forward looking statements,” as defined in Section 27A of the U.S. Securities Act of 1933, as amended, or the “Securities Act,” and Section 21E of the U.S. Securities Exchange Act of 1934, as amended, or the “Exchange Act.” The forward looking statements are based on our current expectations, assumptions, estimates and projections about us and our industry, and are subject to various risks and uncertainties. Generally, these forward looking statements can be identified by the use of forward looking terminology such as “anticipate,” “believe,” “considering,” “depends,” “estimate,” “expect,” “intend,” “plan,” “planning,” “predict,” “project,” “continue” and variations of these words, similar expressions, or that certain events, actions or results “will,” “may,” “might,” “should,” “would” or “could” occur, be taken or be achieved.

Forward looking statements include, but are not limited to, the following:

- future prices of and demand for our products;
- future earnings and cash flow;
- estimated development and commercial launch schedule of our games in development;
- our ability to attract new customers and retain existing customers;
- the expected growth of the Korean and worldwide online and mobile gaming industries;
- the effect that economic, political or social conditions in Korea have on the revenue generated from our online or mobile game products and our results of operations;
- the effect that any global financial crisis or global economic recession will or may have on our business prospects, financial condition and results of operations; and
- our future business development and prospects, results of operations and financial condition.

We caution you not to place undue reliance on any forward looking statement, each of which involves risks and uncertainties. Although we believe that the assumptions on which our forward looking statements are based are reasonable, any of those assumptions could prove to be inaccurate, and as a result, the forward looking statements based on those assumptions could be incorrect. All forward looking statements are based on our management’s current expectations, assumptions, estimates and projections of future events and are subject to a number of factors that could cause actual results to differ materially from those described in the forward looking statements. Risks and uncertainties associated with our business include, but are not limited to, risks related to changes in the regulatory environment; technology changes; potential litigation and governmental actions; changes in the competitive environment; changes in customer preference and popular culture and trends, including online or mobile gaming culture; political changes; global economic events including, but not limited to, a significant downturn in the global economic and financial markets and a tightening of the global credit markets; changes in business and economic conditions; fluctuations in foreign exchange rates; fluctuations in the prices of our products; decreasing consumer confidence and slowing of economic growth generally; and other risks and uncertainties that are more fully described under the heading “Risk Factors” in this Annual Report, and elsewhere in this Annual Report. In light of these and other uncertainties, you should not conclude that we will necessarily achieve any plans and objectives or projected financial results referred to in any of the forward looking statements. Except as required by law, we undertake no obligation to update or revise any forward looking statements, whether as a result of new information, future events or otherwise. All subsequent forward looking statements attributable to us or any person acting on our behalf are expressly qualified in their entirety by the cautionary statements contained or referred to in this section.

PART I

ITEM 1. IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISERS

Not applicable.

ITEM 2. OFFER STATISTICS AND EXPECTED TIMETABLE

Not applicable.

ITEM 3. KEY INFORMATION

ITEM 3.A. SELECTED FINANCIAL DATA

The selected consolidated financial and operating data set forth below as of and for the years ended December 31, 2016, 2017 and 2018 have been derived from our audited consolidated financial statements, which have been prepared in accordance with International Financial Reporting Standards (“IFRS”) as issued by the International Accounting Standards Board.

You should read the selected financial data below in conjunction with our audited consolidated financial statements as of December 31, 2017 and 2018 and for the years ended December 31, 2016, 2017 and 2018, and the related notes included elsewhere in this Annual Report and ITEM 5. "OPERATING AND FINANCIAL REVIEW AND PROSPECTS." The selected financial data presented below has been derived from our audited consolidated financial statements. Our historical results do not necessarily indicate expected results for any future periods.

As of and for the Years Ended December 31,  
2016                      2017                      2018                      2018<sup>(1)</sup>  
(In millions of Korean Won and thousands of US\$, except share and

per share data, operating data and percentages)

|                                                      |           |           |           |             |
|------------------------------------------------------|-----------|-----------|-----------|-------------|
| Statements of operations                             |           |           |           |             |
| Revenues:                                            |           |           |           |             |
| Online games-subscription revenue                    | ₩ 23,065  | ₩ 36,428  | ₩ 25,897  | US\$ 23,272 |
| Online games-royalties and license fees              | 12,867    | 16,244    | 13,556    | 12,181      |
| Mobile games and applications                        | 12,041    | 82,624    | 239,489   | 215,203     |
| Character merchandising, animation and other revenue | 3,423     | 6,327     | 7,828     | 7,034       |
| Total revenues                                       | 51,396    | 141,623   | 286,770   | 257,690     |
| Cost of revenues                                     | 29,587    | 94,234    | 210,044   | 188,744     |
| Gross profit                                         | 21,809    | 47,389    | 76,726    | 68,946      |
| Operating expenses:                                  |           |           |           |             |
| Selling, general and administrative expenses         | (15,977 ) | (28,012 ) | (34,820 ) | (31,288 )   |
| Research and development                             | (1,973 )  | (5,239 )  | (8,018 )  | (7,205 )    |
| Other income                                         | 44        | 165       | 122       | 109         |
| Other expenses                                       | (69 )     | (268 )    | (642 )    | (577 )      |
| Total operating expenses                             | 17,975    | 33,354    | 43,358    | 38,961      |
| Operating profit                                     | 3,834     | 14,035    | 33,368    | 29,985      |
| Finance income (costs)                               |           |           |           |             |
| Finance income                                       | 1,666     | 1,875     | 2,073     | 1,862       |
| Finance costs                                        | (1,673 )  | (1,452 )  | (1,002 )  | (900 )      |
| Net finance income(costs)                            | (7 )      | 423       | 1,071     | 963         |
| Profit before income tax                             | 3,827     | 14,458    | 34,439    | 30,947      |
| Income tax expenses                                  | 3,240     | 1,144     | 3,053     | 2,744       |
| Profit for the year                                  | 587       | 13,314    | 31,386    | 28,203      |
| Profit (loss) attributable to:                       |           |           |           |             |
| Non-controlling interest                             | (70 )     | (5 )      | (57 )     | (51 )       |
| Owners of the Parent Company                         | ₩ 657     | ₩ 13,319  | ₩ 31,443  | US\$ 28,254 |

|                                                           |          |          |          |             |  |  |  |
|-----------------------------------------------------------|----------|----------|----------|-------------|--|--|--|
| Other comprehensive income (loss)                         |          |          |          |             |  |  |  |
| Foreign currency translation adjustment                   | (77 )    | 37       | 178      | 160         |  |  |  |
| Total comprehensive income for the year                   | 510      | 13,351   | 31,564   | 28,363      |  |  |  |
| Total comprehensive income attributable to:               |          |          |          |             |  |  |  |
| Non-controlling interest                                  | (70 )    | (5 )     | (57 )    | (51 )       |  |  |  |
| Owners of the Parent Company                              | ₩ 580    | ₩ 13,356 | ₩ 31,621 | US\$ 28,414 |  |  |  |
| Earnings per share                                        | 95       | 1,917    | 4,525    | 4.07        |  |  |  |
| Balance sheet data:                                       |          |          |          |             |  |  |  |
| Cash and cash equivalents                                 | ₩ 16,720 | ₩ 39,095 | ₩ 86,051 | US\$ 77,325 |  |  |  |
| Total current assets                                      | 53,593   | 108,871  | 160,168  | 143,925     |  |  |  |
| Property and equipment, net                               | 478      | 946      | 1,498    | 1,347       |  |  |  |
| Total assets                                              | 55,744   | 115,883  | 173,174  | 155,613     |  |  |  |
| Total current liabilities                                 | 20,686   | 64,744   | 93,521   | 84,037      |  |  |  |
| Total liabilities                                         | 25,097   | 71,885   | 97,622   | 87,723      |  |  |  |
| Equity attributable to owners of the Parent Company       | 31,204   | 44,560   | 76,158   | 68,435      |  |  |  |
| Non-controlling interest                                  | (557 )   | (562 )   | (606 )   | (545 )      |  |  |  |
| Share capital                                             | 3,474    | 3,474    | 3,474    | 3,122       |  |  |  |
| Total equity                                              | 30,647   | 43,998   | 75,552   | 67,890      |  |  |  |
| Selected operating data and financial ratios (unaudited): |          |          |          |             |  |  |  |
| Gross profit margin <sup>(2)</sup>                        | 42.4 %   | 33.5 %   | 26.8 %   | 26.8 %      |  |  |  |
| Operating profit margin <sup>(3)</sup>                    | 7.5 %    | 9.9 %    | 11.6 %   | 11.6 %      |  |  |  |
| Net profit margin <sup>(4)</sup>                          | 1.3 %    | 9.4 %    | 10.9 %   | 10.9 %      |  |  |  |

## Notes:

- (1) For convenience only, the Won amounts are expressed in U.S. dollars at the rate of Won 1,112.85 to US\$1.00, the noon buying rate in effect on December 31, 2018 as certified by the Federal Reserve Bank of New York for customs purposes.
- (2) Gross profit margin for each period is calculated by dividing gross profit by total revenues for each period.
- (3) Operating profit margin for each period is calculated by dividing operating income by total revenues for each period.
- (4) Net profit margin for each period is calculated by dividing net profit attributable to owners of the parent company by total revenues for each period.

## ITEM 3.B. CAPITALIZATION AND INDEBTEDNESS

Not applicable.

## ITEM 3.C. REASONS FOR THE OFFER AND USE OF PROCEEDS

Not applicable.

### ITEM 3.D. RISK FACTORS

#### RISKS RELATING TO OUR BUSINESS

We currently depend on our main game, Ragnarok Online, and games developed from Ragnarok Online, for a significant portion of our revenues

A significant portion of our revenues has been and is currently derived from Ragnarok Online and other games developed based on the contents of Ragnarok Online, including our mobile game Ragnarok M: Eternal Love. In 2018 and 2017, we derived Won 31,994 million (US\$28,750 thousand) and Won 37,483 million in revenues from Ragnarok Online, respectively, representing approximately 11.2% and 26.5% of our total revenues for such periods. We derived Won 237,032 million (US\$212,995 thousand) and Won 83,907 million in revenues from the games developed based on the contents of Ragnarok Online in 2018 and 2017, respectively, representing approximately 82.7% and 59.2% of our total revenues for such periods. In 2018 and 2017, our mobile game Ragnarok M: Eternal Love represented 75.1% of our total revenues, or Won 215,391 million (US\$193,549 thousand), and 26.1% of our total revenues, or Won 36,975 million, respectively.

Ragnarok Online has been on the market for seventeen years and has reached maturity in most of our principal markets. The Company has continually maintained, improved and updated Ragnarok Online and developed new games based on Ragnarok Online. If we fail to maintain, improve, update or enhance Ragnarok Online in a timely manner or fail to successfully develop new games based on Ragnarok Online, this is likely to lead to a decline in the user base of games developed from the contents of Ragnarok Online, which in turn is likely to lead to a material decline in our subscription revenues, royalties and mobile revenue. This would likely materially and adversely affect our business, financial condition and results of operations.

If we are unable to consistently and timely develop, acquire, license, launch, market or operate commercially successful online and mobile games, our business, financial condition and results of operations may be materially and adversely affected.

In order to grow our revenues and net income, we must retain our existing users and attract new users by developing, acquiring, licensing, launching, marketing or operating other commercially successful online and mobile games. In addition to Ragnarok Online, we currently offer five other online games: Ragnarok Online II, Requiem, Dragonica (which is also known as Dragon Saga in the United States, Canada and South America except for Brazil), Ragnarok Prequel and Ragnarok Clicker. None of our other online games to date has proven to be as commercially successful as Ragnarok Online. Moreover, the limited market acceptance of Ragnarok Online II resulted in financial losses, including the recognition of an impairment loss on intangible assets of Won 4,605 million in 2015, and the termination or amendment of license agreements with our licensees in relation to Ragnarok Online II. Since April 2014, there have been terminations of license agreements for service of Ragnarok Online II in the Philippines, Brazil, Singapore, Malaysia, Thailand, Vietnam, Japan and Indonesia.

In 2018, mobile games and applications represented 83.5% of our total revenues, with one mobile game, Ragnarok M: Eternal Love, representing 75.1% of our total revenues. Mobile games are played using mobile devices and smartphones, including Google Android compatible phones, the Apple iPhone, other feature phones, and tablet computers. In January 2015, we entered into a development agreement with Shanghai The Dream Network Technology Co., Ltd. ("Dream Square") to develop and distribute two mobile games based on the contents of Ragnarok Online, with Gravity retaining distribution rights for certain territories. This agreement was amended in March 2016 to grant Dream Square an exclusive right to develop mobile and web games based on the contents of Ragnarok Online and distribute such games in China for five years from March 25, 2016. Following the agreement, Dream Square developed and we launched three mobile games – RO: Idle Poring, Ragnarok R and Ragnarok M: Eternal Love – based on the contents of Ragnarok Online in June 2016, October 2016 and March 2017, respectively. We also launched these games in various markets including Taiwan, Korea, the United States and Canada, Southeast Asia, South and

North America and Oceania. For additional information, see ITEM 4.B. “BUSINESS OVERVIEW—OUR PRODUCTS—Mobile games and applications.”

Although we have achieved significant commercial success after publishing these games in 2017, there is no guarantee that we will continue to be successful in the mobile game publishing business. A game's commercial success largely depends on appealing to the tastes and preferences of a critical mass of users as well as the willingness of such users to purchase the game and/or in game items, and to continue as paying subscribers, all of which are difficult to predict prior to a game's development and introduction. Developing games requires substantial development costs, including the costs of employing skilled developers and acquiring or developing game engines which enable the creation of games with the latest technological features. For us to continue to succeed, we must acquire, license or develop promising games at acceptable costs and ensure technical support for the successful operation of such games. The online and mobile gaming industries are highly competitive, and we may not be able to acquire, license or develop promising games at acceptable costs. In order to successfully distribute and operate a game, we also need a sizable game management and support staff, continued investment in technology and a substantial marketing budget.

We cannot assure you that the games we develop or publish will be attractive to users or otherwise be commercially successful, launched as scheduled or able to successfully compete with games operated by our competitors. If we are not able to consistently develop, acquire, license, launch, market or operate commercially successful games, we may not be able to generate enough revenues to offset our initial development, acquisition, licensing and/or marketing costs, and our business, financial condition and results of operations may be materially and adversely affected.

We may not be successful in making our mobile games profitable, and our profit margins from mobile games may be relatively lower than the profits we have enjoyed historically for online games.

Our profit margins from our mobile games, even if the games are successful, are generally lower than our profits generated from online games. This is because, in order to gain access to our games on mobile app stores, the primary distribution channel for our mobile games, we must enter into revenue-sharing arrangements that result in lower profit margins compared with those of our online games.

We have devoted and expect to continue to devote a significant amount of resources to the development of our mobile games, but the relatively lower profit margins and other uncertainties make it difficult to know whether we will succeed in making our mobile game operations more profitable. If we do not succeed in doing so, our business and results of operations will be adversely affected.

We have identified several material weaknesses in our internal control over financial reporting. If we fail to achieve and maintain an effective system of internal control over financial reporting, we may be unable to accurately report our financial results or do so on a timely basis, and our ability to prevent or detect fraud may be reduced, and investor confidence and the market price of our ADSs may be adversely affected.

In connection with the preparation of our consolidated financial statements under IFRS for the year ended December 31, 2018, we have identified several material weaknesses (as defined under Standards of the Public Company Accounting Oversight Board (United States)) in our system of internal control over financial reporting; our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2018 pursuant to section 404 of the Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley Act") and related Securities and Exchange Commission ("SEC") rules and concluded that our internal control over financial reporting was not effective as of December 31, 2018. See ITEM 15. "CONTROLS AND PROCEDURES."

Furthermore, we are subject to the Sarbanes-Oxley Act, which requires us to, among other things, maintain an effective system of internal control over financial reporting, and requires our management to provide a certification on the effectiveness of our internal controls on an annual basis. Additionally, our independent accountants must provide an independent attestation report on our internal control over financial reporting for the fiscal year ending December 31, 2018.

These material weaknesses could result in misstatements of any of our financial statements that are not prevented or detected which could result in a material misstatement to our annual consolidated financial statements. After considering these material weaknesses, among other matters, our chief executive officer and chief financial officer have also concluded, most recently as at December 31, 2018, that our disclosure controls and procedures were not effective to provide reasonable assurance that information required to be disclosed in the reports we file and submit under the Exchange Act is recorded, processed, summarized and reported as and when required.

If we fail to maintain an effective system of internal control over financial reporting, we may be unable to accurately report our financial results in a timely manner or prevent errors or fraud. Any of these possible outcomes could result in an adverse reaction in the financial marketplace due to loss of investor confidence in the reliability of our consolidated financial statements and could result in investigations or sanctions by the SEC, the NASDAQ Stock Market, LLC (“NASDAQ”) or

other regulatory authorities or in stockholder litigation. Any of these factors could ultimately harm our business and could adversely impact the market price of our ADSs.

We depend on our overseas licensees for a portion of our revenues and rely on them to distribute, market and operate our games and comply with applicable laws and government regulations.

In certain markets, we license our games to overseas operators or distributors for license fees and royalty payments based on a percentage of revenues generated from our games in such markets. Overseas license fees and royalty payments generated from our online games represented 4.6% of our total revenues in 2018 and 11.1% of our total revenues in 2017, with 69.6% of our 2018 revenues from license fees and royalty payments attributable to license arrangements with GungHo Online Entertainment Inc. (“GungHo”), which has been our largest shareholder and beneficially owns, as of the date hereof, 59.3% of our common shares.

Deterioration of our relationships with material licensees or material adverse changes in the terms of our licenses with such licensees could have a material adverse effect on our business, prospects, financial condition and results of operations. In addition, deterioration or any adverse developments in the operations, including changes in senior management, of our overseas licensees may materially and adversely affect our business, financial condition and results of operations.

Our overseas licensees generally have the exclusive right to distribute our games in their respective markets for a term of two or three years and may also operate or publish other online and mobile games developed or offered by our competitors, and we may not be able to easily terminate the license agreements as the agreements do not specify particular financial or performance criteria that need to be met by our licensees. For example, GungHo, which is also our 59.3% shareholder, also has its own mobile games business. If our overseas licensees devote greater time and resources to marketing their proprietary games or those of our competitors, we may not be able to terminate our license agreements or enter into new license agreements with different licensees, and our revenues and net profit may be adversely impacted. Also, a failure to satisfy our obligation to provide technical and other consulting services to the licensees under the license agreements may negatively affect user satisfaction and loyalty and hinder our licensees’ efforts to increase market share, which may lead the licensees to focus their attention on our competitors’ games or request modifications to or terminate our licensing agreements and/or not renew expired license agreements.

Our overseas licensees remit royalty payments to us based on a percentage of sales from our games after deducting certain expenses. Some licensees may be allowed to deduct certain expenses before calculating royalty payments depending on the terms of the applicable contracts. Failure by our licensees to maintain a stable and efficient billing, recording, distribution and payment collection network in their respective markets may result in inaccurate recording of sales or insufficient collection of payments (or an illicit diversion of payments) from such markets and may materially and adversely affect our financial condition and results of operations. Although we have audit rights pursuant to our license agreements to ensure that proper payment amounts are being recorded and remitted, such activities can be disruptive and time consuming and as a result, we do not exercise such rights on a regular basis.

Furthermore, our overseas licensees are responsible for complying with local laws, including obtaining and maintaining the requisite government licenses and permits. Failure by our overseas licensees to do so may result in, among others, a suspension of service of our games in such market which may result in user complaints and a decrease in the use of our games which would likely have a material adverse effect on our business, financial condition and results of operations.

Disruptions in the political environments in which our licensees operate may also have a negative impact on their business and in turn materially and adversely affect our business, financial condition and results of operations.

We operate in a highly competitive industry and compete against many large companies.

Increased competition in the online and mobile gaming industry from existing and potential competitors could make it difficult for us to retain existing users and attract new users, and could reduce the number of hours users spend playing our current or future games or cause us and our licensees to reduce the fees charged to play our current or future games. In some of our principal markets, such as Korea, Japan and Taiwan, growth of the market for online games has continued to slow while competition remains strong. We expect more companies to enter the online and mobile game industries and a wider range of online and mobile games to be introduced in our current and future markets. If we are unable to compete effectively in our principal markets, our business, financial condition and results of operations could be materially and adversely affected.

Our competitors in the online and mobile game industries vary in size from small companies to very large companies with dominant market shares. Many of our competitors have significantly greater financial, marketing and game development resources than we have. As a result, we may not be able to devote adequate resources to develop, acquire or license new games, undertake extensive marketing campaigns, adopt aggressive pricing policies or adequately compensate our game developers or third party game developers to the same degree as many of our competitors do.

As the online and mobile game industries are characterized by rapid technological changes, especially in the technical capabilities of devices for mobile games, and changing interests and preferences of users, continuous investment is required to develop and publish new games. Also, as the online and mobile game industries in many of our markets are rapidly evolving, our current or future competitors may adapt to the changing competitive landscape and market conditions and compete more successfully than us. In particular, online and mobile game products are becoming increasingly similar to each other, thus becoming more commoditized and less differentiated. In such an environment, larger companies with relative economies of scale have a clear advantage over smaller companies like us, as they are able to develop games in a more cost efficient manner, diversify their risks with broader categories of games and genres and increase their chances of offering widely popular games. In addition, any of our competitors may offer products and services that have significant performance, price, creativity or other advantages over those offered by us. These products and services may weaken the market strength of our brand name and achieve greater market acceptance than ours. In addition, any of our current or future competitors may be acquired by, receive investments from or enter into strategic relationships with larger and more well established financed companies and therefore may be able to obtain significantly greater financial, marketing and game licensing and development resources than we can.

Furthermore, compared with the online or console game genres, the mobile game market has relatively low barriers to entry because development of a mobile game requires relatively less time and personnel, due to the limitations of the devices on which mobile games are played such as screen size and processing power. Moreover, development tools for mobile games are easier to obtain and use, and open marketplaces, such as the Google Play Store and Apple's App Store, enable developers to easily distribute mobile games to a large global audience. Therefore, we expect the number of mobile game developers to continually increase in the future and competition to become more intense. See ITEM 4.B. "BUSINESS OVERVIEW—COMPETITION."

To continue to be successful, we must leverage the global connectivity and distribution of mobile platforms and our relationships with mobile platform providers, which in many cases have the unilateral ability to amend their policies and terms and conditions for applications and developers.

Our mobile games increasingly leverage the global connectivity and distribution of mobile platforms including Apple's App Store for iOS devices and the Google Play Store for Android devices. Our games are distributed on these platforms and the virtual items we sell in our games are purchased using the payment processing systems of these platform providers. In 2018, 79.6% of our revenues were generated through third-party mobile platforms. We are subject to the standard policies and terms of service of these third party platforms, which govern the promotion, distribution and operation of games on the platform and can be changed by the platform providers, in their sole discretion, at any time. Such changes may decrease the visibility or availability of our games, limit our distribution capabilities, prevent access to our existing games and reduce revenue we may recognize from in-game purchases, increase our costs to operate on these platforms or result in the exclusion or limitation of our games on such third party platforms. Any such changes could significantly harm our business in both the short-term and long-term. If we violate, or a platform provider believes we have violated, the terms of service for a platform, our access to the platform could be limited or discontinued, which may materially and adversely affect our business.

We also rely on the continued functionality of the Apple App Store and the Google Play Store. If our players or potential players are not able to access our games through these platforms or encounter difficulties in doing so, we may lose players, resulting in decreased revenue. The level of service provided by these storefronts may also impact users' purchase and usage of and satisfaction with virtual goods or game money, and adversely affect our business and

profitability. Further, in the past these digital storefronts have experienced interruptions in service or issues with their in-app purchasing functionality. If these types of interruptions were to occur regularly or on a prolonged basis, or other similar issues arise that impact our ability to generate revenues from these storefronts, our business, financial condition and results of operations may be materially and adversely affected.

Our investments in joint ventures or partnerships, or acquisitions of other companies, related to the development or service of online and mobile games may not be successful.

Since 2004, we have made investments in joint ventures and entered into partnership arrangements with third parties to invest in developing and/or servicing online and mobile games. In many cases, the success of such joint ventures and partnership arrangements is heavily dependent on third parties and their investment decisions because we do not have significant voting or other control over such entities.

If our partners or the joint ventures and partnerships in which we and our partners have invested or companies acquired by us are unable to manage their investments, develop promising online and/or mobile games or market or operate commercially successful online and/or mobile games, such joint ventures and partnerships or companies will be unable to attain their investment, development or other business objectives, which may materially and adversely affect the value of our investments and commitments and which may have a material adverse effect on our business, financial condition and results of operations.

We publish games developed by third parties, which exposes us to a number of potential operational and legal risks.

In 2018, we derived 82.8% of our revenues from online games and mobile games that were developed by third-party developers, 77.8% of which comprises revenues from mobile games developed by our key third-party developer Dream Square. Under our license agreements for these games, we rely on such third-party developers to provide game updates, enhancements and new versions; provide materials and other assistance in promoting the games; and resolve game programming errors and issues with intrusions. In particular, our key mobile game, Ragnarok M: Eternal Love, which represented 75.1% of our total revenues in 2018, was developed by Dream Square (together with co-developer X.D. Network Inc. ("Xindong")), and we intend to rely on this third-party developer to develop future enhancements to Ragnarok M: Eternal Love and other mobile games based on Ragnarok Online. Any failure of third-party developers to provide game updates, enhancements and new versions that are appealing to game players in a timely manner, and provide assistance that enables us to effectively promote the games, could adversely affect the game-playing experience of our game players, damage our reputation, or shorten the life-spans of those games, any of which could result in the loss of game players, acceleration of our amortization of the license fees we have paid for those games, or a decrease in our revenues from those games.

Publishing games developed by third parties also exposes us to a number of potential operational and legal risks. For example, we may be required to provide third party developers with upfront license fees or non-recoupable minimum guaranteed royalties in order to obtain the rights to publish their games, and we may incur significant marketing costs for these games before or after they have been commercially launched. We must often make such commitments and investments without knowing whether the games we are licensing or jointly developing will be successful and generate sufficient revenues to enable us to recoup our costs or for the games to be profitable. In addition, if any of the games created by third party developers with which we work infringe intellectual property owned by others, or otherwise violate any third party's rights or any applicable laws and regulations, such as laws with respect to data collection and privacy, we would be exposed to potential legal risks by publishing these games, which could adversely affect our reputation and business.

Our revenues fluctuate significantly and may adversely impact the trading price of our ADSs, or any other securities which become publicly traded. We also may not be able to sustain our recent rapid growth in revenue.

Our revenues and results of operations have varied significantly in the past and may continue to fluctuate in the future. Many of the factors that cause such fluctuation, such as competition, regulatory changes and general economic conditions, are outside our control. In addition, usage of our online and mobile games typically increase slightly around holidays, including the Lunar New Year holidays and during winter and summer holidays for schools. Further, our recent significant growth in revenue may not be sustainable, as our mobile games business may not continue to grow at its current pace. Accordingly, you should not rely on year-to-year, or quarter-to-quarter, comparisons of our

results of operations as an indication of our future performance. It is possible that future fluctuations may cause our results of operations to be below the expectations of market analysts and investors, and cause the trading price of our ADSs to decline.

If we fail to hire and retain skilled and experienced game developers or other key personnel to design and develop new online and mobile games and additional game features, we may be unable to achieve our business objectives.

In order to meet our business objectives and maintain our competitiveness, we need to attract and retain qualified employees, including skilled and experienced online and mobile game developers. We compete to attract and retain skilled and experienced personnel with other companies in the online and mobile game industries as well as in the broader entertainment, media and Internet industries, many of which offer superior compensation arrangements and career opportunities. In addition, our ability to train and integrate new employees into our operations may not meet the changing demands of our business. We cannot assure you that we will be able to attract and retain qualified game developers or other key personnel and successfully train and integrate them to achieve our business objectives, which could materially harm our business prospects.

Undetected programming errors or flaws in our games could harm our reputation or decrease market acceptance of our games, which would materially and adversely affect our business prospects, reputation, financial condition and results of operations.

Our current and future games may contain programming errors or flaws which may become apparent only after their release. In addition, our online and mobile games are developed using programs and engines developed by and licensed from third party vendors, which may include programming errors or flaws over which we have little or no control. If our users have negative experiences with our games related to or caused by undetected programming errors or flaws, they may be less inclined to use our games or recommend our games to other potential users.

While we have not experienced any material disruptions to our business from such errors or flaws in our games or in the programs and engines that we use to develop our games, these risks are inherent to our industry and, if realized, could severely harm our reputation, cause our users to cease playing our games, divert our resources or delay market acceptance of our games, any of which could materially and adversely affect our business, financial condition and results of operations.

Unexpected network interruptions, security breaches or computer virus attacks could harm our business and reputation.

Failure to maintain satisfactory performance, reliability, security and availability of our network infrastructure, whether maintained by us or by our licensees, may cause significant harm to our reputation and negatively impact our ability to attract and maintain users. Major risks relating to our network infrastructure include:

- any breakdowns or system failures, including from fire, flood, earthquake, hurricane or other natural disasters, power loss or telecommunications failure, resulting in a sustained shutdown of all or a material portion of our servers;
- any disruption or failure in the national or international backbone telecommunications network, which would prevent users in certain countries in which our games are distributed from logging onto or playing our games for which the game servers are located in such countries; and
- any security breach caused by hacking, loss or corruption of data or malfunctions of software, hardware or other computer equipment, and the inadvertent transmission of computer viruses.

“Hacking” involves efforts to gain unauthorized access to information or systems or to cause intentional malfunctions or loss or corruption of data, software, hardware or other computer equipment. Hackers, if successful, could misappropriate proprietary information or cause disruptions in our service. We may have to spend significant capital and human resources to fix any damage to our system. In addition, we cannot ensure that any measures we take against hacking will be effective. A well publicized computer security breach could significantly damage our reputation and materially and adversely affect our business.

We have been subject to denial of service attacks that have caused portions of our network to be inaccessible for limited periods of time. Although such attacks did not cause material losses or damages, we cannot ensure you that

any protective measures we have implemented will be effective against future hacking efforts and that any such attacks in the future will not have a material adverse effect on our business, results of operations, financial condition or prospects.

In addition, computer viruses may cause delays or other service interruptions on our systems and expose us to a material risk of loss or litigation and possible liability. We may be required to expend significant capital and other resources to protect our Web sites against the threat of such computer viruses and to address and resolve any problems resulting from such viruses. Moreover, if a computer virus affecting our system is highly publicized, our reputation could be materially damaged and our visitor traffic may decrease.

Any of the foregoing factors could reduce our users' satisfaction, harm our business and reputation and have a material adverse effect on our business, financial condition and results of operations.

Failure to protect personal information could adversely affect our business, reputation and results of operations

We collect, process, store and transmit personal information of game users worldwide for our global game service. Our business may be subject to a number of federal, state, local and foreign laws and regulations governing data privacy and security, including with respect to the collection, processing, storage, use, transmission and protection of personal information and other consumer data on the Internet and mobile platforms, the scope of which are continually changing and subject to differing interpretations, and which may be inconsistent among countries or otherwise in conflict with other laws or regulations. These obligations may be interpreted and applied in a manner that is inconsistent from one jurisdiction to another and may conflict with other laws or regulations or our practices. Also, the failure to prevent or mitigate the loss of personal information data or other game user data, including as a result of breaches of our vendors' technologies and systems, could expose us or our game users to a risk of loss or misuse of such information. Any such failure or perceived failure by us to comply with our privacy policies, our privacy-related obligations to players or other third parties, or our privacy-related legal obligations, including without limitation any compromise of security that results in the unauthorized release or transfer of personally identifiable information or other player data, may result in governmental enforcement actions, litigation or public statements against us by consumer advocacy groups or others and could cause our players to lose trust in us, which may have an adverse effect on our business, reputation and results of operations. See ITEM 4.B. "BUSINESS OVERVIEW—LAWS AND REGULATIONS" for a detailed discussion regarding laws of Korea, Taiwan, Thailand, the Philippines, Japan and the U.S. that may materially impact our operations.

Further, we may not be able to adequately adapt our internal policies and/or procedures to evolving regulations, which may require us to change our practices in a manner adverse to our business or limit access to our products and services in certain countries. As a result, our reputation and brand may be harmed, we could incur substantial costs, and we could lose both customers and revenues. For example, the European General Data Protection Regulation ("GDPR"), which became effective as of May 2018, contains significant penalties for non-compliance and would apply to us if we were to receive or process the personal data of residents of the European Union. As a result of GDPR, we currently do not offer our mobile games within the European Union.

Electronic embezzlement could negatively impact the popularity of our online and mobile games and adversely affect our reputation and results of operations.

Some of our employees or licensees' employees with high level security access to our network, or other employees or persons who hack into or otherwise gain unauthorized access to certain sectors of our network, may succeed in breaching internal security systems and engage in electronic embezzlement by creating or diverting game money used in our online and mobile games and publicly or privately selling the game money for their financial benefit. We and our overseas licensees may not be successful in preventing electronic embezzlement. Incidents of electronic embezzlement may negatively impact the reputation of our games, which may materially and adversely affect our business, financial condition and results of operations.

Cheating by users of online and mobile games could negatively impact the popularity of our online and mobile games and adversely affect our reputation and results of operations.

We have experienced numerous incidents where users were able to modify the published rules of our online and mobile games. Users were able to modify the rules of our online and mobile games during game play in a manner that allowed them to cheat and disadvantage other online game users. For example, users have utilized auto run programs that enabled games to be continuously and automatically played without user participation to quickly accumulate in game points, causing many other players to stop using the game and shortening the game's life cycle. For mobile games, some users have purchased game money or in game items through cloned mobile phones and sold such illegally obtained property to other users, which resulted in a shortfall between total sales and our actual revenues. Such unauthorized manipulation of our games may negatively impact users' perception of our games and damage our reputation as well as our results of operations. We or our licensees may not be successful in taking the corrective measures necessary to prevent users from modifying the terms of our games in a timely manner.

Unauthorized use of our intellectual property rights by third parties and the expenses incurred in protecting our intellectual property rights may adversely affect our business.

Our intellectual property rights such as copyrights, service marks, trademarks and trade secrets are critical to our business. Unauthorized use of the intellectual property rights used in our business, whether owned by us or licensed to us, may materially and adversely affect our business and reputation. We rely on trademark and copyright law, trade secret protection and confidentiality agreements with our employees, customers, business partners and others to protect our intellectual property rights. It may be possible for third parties to obtain and use our intellectual property without authorization.

Since the commercialization of Ragnarok Online in August 2002, we have discovered that the server end software of Ragnarok Online has been unlawfully released on a consistent basis in most of the countries and markets in which Ragnarok Online has been offered. This enables unauthorized parties to set up local server networks to operate Ragnarok Online, which may result in the diversion of a significant number of paying users. We designate certain employees to be responsible for detecting such illegal servers. In Korea, we report offenders to the relevant enforcement authority for possible prosecution relating to crimes on the Internet. In markets outside of Korea, we cooperate with and rely on our licensees to seek enforcement actions against operators of illegal servers. For example, in Japan, we submitted a preliminary written accusation to the Tokyo Metropolitan Police Department in October 2009 and filed criminal charges against an illegal server operator of Ragnarok Online in April 2011 in cooperation with GungHo, our licensee in Japan. The case file was transferred to the Nagano District Public Prosecutor's Office in December 2014 and the defendant was summarily indicted for copyright violation with a fine of Japanese Yen 300,000 in September 2015. We may incur considerable costs in the future in order to remedy software piracy of our server software and enforce our rights against the operators of unauthorized server networks.

The validity, enforceability, enforcement mechanisms and scope of protection of intellectual property in Internet related industries are uncertain and evolving. In particular, the laws and enforcement regimes of Korea, Japan, Taiwan, the Philippines, China, Thailand and certain other countries in which our games are distributed are uncertain or may not protect intellectual property rights to the same extent as do the laws and enforcement procedures of the United States. Moreover, litigation may be necessary in the future to enforce our intellectual property rights. Such litigation could result in substantial costs and diversion of our resources, disruption of our business, and have a material adverse effect on our business, prospects, financial condition and results of operations.

We may be subject to claims with respect to the infringement of intellectual property rights of others, which could result in substantial costs and diversion of our financial and management resources.

We cannot be certain that our online and mobile games do not or will not infringe upon patents, copyrights or other intellectual property rights held by third parties. We have in the past been and may in the future become subject to legal proceedings and claims from time to time relating to the intellectual property of other parties. If we are found to have violated the intellectual property rights of other parties, we may be enjoined from using such intellectual property rights, be required to pay penalties and fines and pay for the unauthorized use of such intellectual property, and may need to incur additional license fees or be forced to develop alternative technology or obtain other licenses. We may incur substantial expenses in defending against these third party infringement claims, regardless of their merit. In addition, certain of our employees were recruited from other online and mobile game developers, including current and potential competitors. To the extent these employees have been and are involved in the development of our games that are similar to the games they helped develop at their former employers, we may become subject to claims that we or such employees have improperly used or disclosed trade secrets or other proprietary information. Although we are not aware of any pending or threatened claims of this type, if any such claims were to arise in the future, litigation or other dispute resolution procedures might be necessary to retain our ability to offer our current and future games, which could result in substantial costs and diversion of our financial and management resources.

Successful infringement or licensing claims against us may result in substantial monetary damages, which may materially disrupt our business operations and have a material adverse effect on our reputation, business, financial condition and results of operations.

We may not be able to successfully implement our growth and profit improvement strategies.

We are pursuing a number of growth and profit improvement strategies, including the following:

- distributing games developed in house;
- publishing games acquired from or developed by third parties through licensing arrangements;

- intellectual property licensing to or from third parties for game development;
- offering our games in countries where such games have not yet been launched;
- optimizing our marketing and research and development expenditures;
- cross selling our popular online games through other lines of businesses, such as mobile games, console games, animation and character merchandising; and
- pursuing strategic relationships with game development and service companies.

We cannot assure you that we will be successful in implementing any of these strategies. Certain of our strategies relate to new services or products for which there are no established markets, or in which we lack experience and expertise. In particular, any plans to begin offering our games in the United Kingdom may be impacted by the United Kingdom's decision to leave the European Union. If we are unable to successfully implement our growth and profit improvement strategies, our revenues, profitability and competitiveness may be materially and adversely affected.

We have limited business insurance coverage, and business interruption could have a material adverse effect on our business.

While we carry insurance coverage against certain risks to our property and assets, such as fire, flood and earthquake, as well as directors' and officers' liability insurance, we do not separately maintain casualty and liability insurance against litigation, risks or disruptions related to our business. The occurrence of any natural disaster, fire, power loss, telecommunications failure, break ins, sabotage, computer viruses, intentional acts of Internet vandalism, human error or other similar events may damage our facilities or network servers and disrupt the operation of our business. As we do not carry sufficient natural disaster or business interruption insurance to compensate us for all types or amounts of loss that could arise, any damage or disruption from such events might result in our incurring substantial costs and the diversion of our resources, and have a material adverse effect on our business, financial condition and results of operations. See ITEM 4.B. "BUSINESS OVERVIEW—INSURANCE."

As we introduce new games, we face the risk that a significant number of users of our existing games may migrate to our new games.

We expect that as we introduce new games, a certain number of our existing users may migrate from our existing games to the new games, which may lead to a decrease in the player base of our existing games and in turn make those existing games less playable to other game players, resulting in decreased revenues from our existing games. Players of our existing games may also spend less money to purchase in game items in our new games than they would have spent if they had continued playing our existing games. In addition, our game players may migrate from our existing games with a higher profit margin to new games with a lower profit margin. If any of the foregoing occurs, our revenues and profitability are likely to be materially and adversely affected.

New or changed game features in our online games may not be well received by our game players.

In the course of launching and operating online games, including the release of updates and expansion packs to existing games, certain game features may periodically be introduced, changed or removed. We cannot assure you that the introduction, change or removal of any game feature will be well received by our game players, who may decide to reduce or eliminate their playing time in response to any such introduction, change or removal. As a result, any introduction, change or removal of game features may adversely impact our business, financial condition and results of operations.

Although we believe that we may not have been a passive foreign investment company (“PFIC”) for taxable years 2018 and 2017, we believe that we were a PFIC for taxable years 2008 through 2016, and we may be a PFIC in future years. As a result of being a PFIC in prior years, and because of the possibility that we may have been a PFIC for the 2018 and 2017 taxable years, and may be a PFIC in future taxable years, U.S. investors could be subject to adverse U.S. federal income tax consequences.

The rules governing PFICs can have adverse consequences for U.S. investors for U.S. federal income tax purposes. The tests for determining PFIC status for a taxable year depend upon the relative values of certain categories of assets and the relative amounts of certain kinds of income. As discussed in ITEM 10.E. “TAXATION—MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS,” we believe that we may not have been a PFIC for taxable years 2018 and 2017, but we believe that we were a PFIC for taxable years 2008 through 2016, and we may be a PFIC in future years. The determination of whether we are a PFIC depends on particular facts and circumstances (such as the valuation of our assets, including goodwill and other intangible assets) and may also be affected by the application of the PFIC rules, which are subject to differing interpretations. Such determination is also expected to depend, in part, upon (1) the market price of the ADSs and (2) the composition of our income and assets. In light of the foregoing, no assurance can be provided that we were not a PFIC for the 2018 and 2017 taxable years or that we will not become a PFIC in any future taxable year. Furthermore, if we are treated as a PFIC, then one or more of our subsidiaries may also be treated as PFICs.

If we were characterized as a PFIC for any taxable year, and a U.S. Holder (as defined in ITEM 10.E. “TAXATION—MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS.”) held our ADSs or common shares during such taxable year, we generally will continue to be treated as a PFIC with respect to that U.S. Holder for all succeeding taxable years during which the U.S. Holder holds ADSs or common shares, even if we cease to meet the requirements for PFIC status. In such case, U.S. Holders of our common shares and ADSs would be subject to adverse U.S. federal income tax consequences, such as ineligibility for any preferential tax rates on capital gains or on actual or deemed dividends, interest charges on certain taxes treated as deferred, and additional reporting requirements under U.S. federal income tax laws and regulations. Whether U.S. Holders of our common shares or ADSs make (or are eligible to make) a timely qualified electing fund, or QEF, election or a mark to market election may affect the U.S. federal income tax consequences to U.S. Holders with respect to the acquisition, ownership and disposition of our common shares and ADSs and any distributions such U.S. Holders may receive. We do not, however, expect to provide the information regarding our income that would be necessary in order for a U.S. Holder to make a QEF election if we are classified as a PFIC. Investors should consult their own tax advisors regarding all aspects of the application of the PFIC rules to our common shares and ADSs.

Rapid technological developments and changes in market environment may limit our ability to recover game development costs and adversely affect our financial condition and results of operations due to impairment loss.

The online and mobile game industries are subject to rapid technological developments and changes in market environment, which could render our online and mobile games under development and commercialized games obsolete or unattractive to users. Any resulting failure to recover capitalized development costs and the recognition of impairment loss for such costs may materially and adversely affect our financial condition and results of operations.

We could suffer losses due to asset impairment charges.

We held a total of Won 1,163 million (US\$ 1,045 thousand) in intangible assets (comprising software, industrial property rights and other intangible assets) at December 31, 2018. See Note 8 to our consolidated financial statements included in this Annual Report. We test indefinite lived intangible assets at least annually for impairment, and more frequently if an event occurs or circumstances change so that the carrying amount may not be recoverable. Such an event would include unfavorable variances from established business plans, significant changes in forecasted results or volatility inherent to external markets and industries, which are periodically reviewed by our management. If such an adverse event occurs and has the effect of changing one of the critical assumptions or estimates related to the fair

value of our intangible assets, an impairment charge could result. For example, in 2018 and 2017, we recognized impairment loss on intangible assets of Won 623 million and Won 230 million related to the game Legend of Sword and Fairy: Mirror's Mirage, respectively, and we have recognized other similar impairment losses during the past several years.

There can be no assurance that future reviews of intangible assets will not result in significant impairment charges. Although it does not affect cash flow, an impairment charge does have the effect of decreasing our earnings, assets and shareholders' equity.

The value of our deferred tax assets could become impaired, which could materially and adversely affect our results of operations.

As of December 31, 2018, we had approximately Won 7,413 million (US\$6,661 thousand) in net deferred tax assets. See Note 17 to our consolidated financial statements included in this Annual Report. These deferred tax assets include net operating loss carryforwards, tax credit carryforwards and temporary differences that can be used to offset taxable income in future periods and reduce income taxes payable in those future periods. Each year, we determine the probability of the realization of deferred tax assets, using significant judgments and estimates with respect to, among other things, historical operating results and expectations of future earnings. If we determine in the future that there is not sufficient positive evidence to support the valuation of these assets, due to the risk factors described herein or other factors, we may be required to further adjust the probability of realization to reduce our deferred tax assets. Such a reduction could result in material non-cash expenses in the period in which the probability of realization is adjusted and could have a material adverse effect on our results of operations.

## RISKS RELATING TO OUR COMPANY STRUCTURE

GungHo, the licensee of our games in Japan, is our majority shareholder, which gives them control of our board of directors.

Since April 1, 2008, GungHo has been our largest shareholder and beneficially owns, as of the date hereof, 59.3% of our common shares. As a result, GungHo is able to exert significant control over all matters requiring shareholder approval, including the election of directors and approval of significant corporate transactions, including acquisitions, divestitures, strategic relationships and other matters, and may also exert significant control over decisions related to the status of our ADSs being eligible for quotation and trading on the NASDAQ Global Market. In addition, as GungHo is also an online and mobile game developer, there may be conflicts of interest. For instance, GungHo may lead our management with strategies and efforts which benefit itself, its affiliates and their respective shareholders to the detriment of our other shareholders. GungHo may also compete directly or indirectly against us for users and customers or increased market share for its games. GungHo is also currently the licensee of Ragnarok Online in Japan. Furthermore, four of our registered Executive Directors, Mr. Hyun Chul Park, Mr. Yoshinori Kitamura, Mr. Kazuki Morishita and Mr. Kazuya Sakai currently serve as General Manager, Director and Executive General Manager, President and Chief Executive Officer, and Chief Financial Officer and Director, respectively, of GungHo, and there may be conflicts of interest in the decisions made by the Board of Directors of Gravity (the “Board of Directors”) and senior management. See ITEM 7.B. “RELATED PARTY TRANSACTIONS—Relationship with GungHo Online Entertainment, Inc.”

We are a “controlled company” within the meaning of the NASDAQ Stock Market Rules and may rely on exemptions from certain corporate governance requirements.

As GungHo controls 59.3% of our outstanding voting power as of the date hereof, we are a “controlled company” within the meaning of the NASDAQ Stock Market Rules and may rely on exemptions from certain corporate governance requirements. As a “controlled company,” we are not required to have a majority of our Board of Directors be independent, nor are we required to have a compensation committee or independent director oversight of director nominations which meet the requirements set forth in the NASDAQ Stock Market Rules. We are relying on these exemptions as a controlled company. Accordingly, our shareholders do not have the same protections afforded to shareholders of companies that are subject to all of the corporate governance requirements of the NASDAQ Stock Market Rules. For our corporate governance policies, see ITEM 6.C. “BOARD PRACTICES—CORPORATE GOVERNANCE PRACTICES.”

## RISKS RELATING TO OUR REGULATORY ENVIRONMENT

Our online and mobile operations and businesses are subject to laws, rules and regulations in the countries in which our games are distributed, such as Korea, Taiwan, Thailand, the Philippines, Japan and the United States, changes to which are difficult to predict, and uncertainties in interpretation and enforcement of the laws, rules and regulations in such countries may limit the protections available to us.

The regulatory and legal regimes in many of the countries in which our games are distributed have yet to establish a sophisticated set of laws, rules or regulations designed to regulate the online and mobile game industries. However, in many of our principal markets, such as Korea, Taiwan, Thailand, the Philippines, Japan and the United States,, legislators and regulators have implemented or indicated their intention to implement laws, rules and regulations with respect to issues such as user privacy, defamation, pricing, advertising, taxation, foreign ownership limitations, promotions, financial market regulation, consumer protection, content regulation, quality of products and services, and intellectual property ownership and

infringement that may directly or indirectly impact our activities. The impact of such laws, rules and regulations on our business and results of operations is difficult to predict as many such laws, rules and regulations are constantly changing. However, as we might unintentionally violate such laws, rules and regulations, or such laws, rules or regulations may be modified, and new laws, rules and regulations may be enacted in the future, any such developments, or developments stemming from enactment or modification of other laws, rules or regulations, could increase the costs of regulatory compliance, force changes in business practices or otherwise have a material adverse effect on our business, financial condition and results of operations. Further, if the cost of regulatory compliance increases for our licensees as a result of regulatory changes, our licensees may seek to reduce royalties and license fees payable to us, which may materially and adversely affect our business, financial condition and results of operations. See ITEM 4.B. “BUSINESS OVERVIEW—LAWS AND REGULATIONS” for a discussion regarding the laws of Korea, Taiwan, Thailand, the Philippines, Japan and the United States that may materially impact our operations.

Our online and mobile games may be subject to governmental restrictions or ratings systems, which could delay or prohibit the release of new games or reduce the existing and potential scope of our user base.

Legislation is periodically introduced in many of the countries in which our games are distributed to establish a system for protecting consumers from the influence of graphic violence and sexually explicit materials contained in various types of games. For example, Korean law requires online game companies to obtain ratings classifications and implement procedures to restrict access of online games to certain age groups. Similar mandatory ratings systems and other regulations affecting the content and distribution of our games have been adopted or are under review in Taiwan, China, the United States and other markets for our games. In the future, we may be required to modify our game content or features or alter our marketing strategies to comply with new governmental regulations or ratings assigned to our current or future games, which could delay or prohibit the release of new games or upgrades and reduce the existing and potential scope of our user base. Moreover, uncertainties regarding governmental restrictions or ratings systems applicable to our business could give rise to market confusion, thereby materially and adversely affecting our business, financial condition and results of operations.

Restrictions and controls on currency exchange in Korea and in certain countries in which our games are distributed may limit our ability to effectively utilize revenues generated in Won to fund our business activities outside Korea or expenditures denominated in foreign currencies, and may limit our ability to receive and remit revenues effectively.

Existing and future restrictions on currency exchange in Korea, including Korean foreign exchange control regulations, may restrict our ability to convert Won into foreign currencies under certain emergency circumstances, such as natural calamities, wars, conflicts of arms or grave and sudden changes in domestic or foreign economic circumstances, difficulties in Korea’s international balance of payments and international finance and obstacles in carrying out currency policies, exchange rate policies and other Korean macroeconomic policies. Such restrictions may limit our ability to effectively utilize revenues generated in Won to fund our business activities outside Korea or expenditures denominated in foreign currencies.

In addition, the governments in certain markets in which our games are distributed, including without limitation Taiwan, China and Thailand, impose controls on the convertibility of local currency into foreign currencies and, in some cases, the remittance of currency outside their countries. Under current foreign exchange control regulations of certain markets, shortages in the availability of foreign currency may restrict the ability of our overseas licensees to pay license fees and royalties, most of which are paid in U.S. dollars, to us. Restrictions on our ability to receive license fees, royalties and other payments from our licensees would adversely affect our results of operations, financial condition and liquidity.

Adverse changes in the withholding tax rates in the countries from which we receive license fees and royalties and adverse changes in our ability to realize deferred tax assets could adversely affect our net profit.

We may be subject to income tax withholding in countries where we derive revenues. Such withholding is made by our overseas licensees at the current withholding rates in such countries. To the extent Korea has a tax treaty with any such country, the withholding rate prescribed by such tax treaty will apply. Under the Corporation Tax Law of Korea, we are entitled to and recognize a capped foreign tax credit computed based on the amount of income taxes withheld overseas when filing our corporate income tax return in Korea. Accordingly, the amount of taxes withheld overseas may be offset against taxes payable in Korea.

Recently, there have been a series of amendments to tax treaties that Korea has entered into with various countries. Under the amended tax treaty between Korea and India, the tax rate applicable to license fees and royalties was reduced from 15% to 10% in respect of income derived in any fiscal year beginning on or after April 1, 2017. The tax treaty between Korea and Hong Kong, which became effective as of September 27, 2016, includes a provision promulgating that license fees and royalties shall be subject to tax at the reduced rate of 10% in respect of income derived in any fiscal year beginning on or after April 1, 2017. These series of promulgations are all intended to eventually further limit the source country's taxation right with respect to license fees and royalties. Any adverse changes in tax treaties between Korea and the countries from which we receive license fees and royalties, such as in the rate of withholding tax in the countries in which our games are distributed or in Korean tax law enabling us to recognize foreign tax credits for taxes withheld overseas, could adversely affect our net income.

## RISKS RELATING TO OUR MARKET ENVIRONMENT

Our businesses may be adversely affected by developments affecting the economies of the countries in which our games are distributed.

Our future performance will depend in large part on the economic growth of our principal markets. Our top geographic markets in terms of 2018 revenues were Taiwan, Korea, Thailand and the Philippines, representing 34.2%, 28.2%, 15.3% and 5.4%, respectively, of our total revenues in 2018. Accordingly, our business, prospects, financial condition and results of operations are subject to the economic, political, legal and regulatory conditions and developments in these countries and markets. Adverse economic developments in such markets may have an adverse effect on the number of our users and our revenues and have a material adverse effect on our results of operations.

The overall prospects for our principal markets as well as the global economy remain uncertain. For example, in Korea, economic indicators in recent years have shown mixed signs, and the future growth of the Korean economy is subject to many factors beyond our control, including developments in the global economy. Unfavorable or uncertain economic and market conditions can be caused by difficulties in the financial sector, corporate, political or other scandals that may reduce confidence in the markets, declines in business confidence, increases in inflation, natural disasters or pandemics, outbreaks of hostilities or other geopolitical instability. Deterioration in economic or diplomatic relations between Korea and its trading partners or allies, including deterioration resulting from territorial or trade disputes or disagreements in foreign policy (such as the controversy in the past few years between Korea and China, which is Korea's largest export market, regarding the deployment of a Terminal High Altitude Area Defense system in Korea by the United States and the ensuing economic and other retaliation by China), or a combination of these or other factors, have in the past adversely affected, and may in the future adversely affect, the Korean economy and, in turn, our business and performance.

Further, we derive a significant percentage of our revenue from customers in Taiwan. An increase in tensions between Taiwan and China and the possibility of instability and uncertainty could adversely affect the prices of our ADSs and our shares. Relations between Taiwan and China and other factors affecting Taiwan's political and economic environment could affect our business.

We also derive a significant percentage of our revenues from customers in Thailand and the Philippines. Both of these countries have been subject to political, social and economic volatility that, directly or indirectly, could have a material adverse impact on our ability to sustain our business and growth in these markets. We cannot assure you that the political environment in Thailand or the Philippines will be stable or that the current or any future government will adopt economic policies that are conducive to sustained economic growth or which do not materially and adversely impact the current regulatory environment for digital gaming companies.

Fluctuations in exchange rates could result in foreign currency exchange losses.

In most of the countries in which our games are distributed, the revenues generated by our overseas branch, licensees or subsidiaries are denominated in local currencies, which include, among others, the NT dollar, the Japanese Yen, the U.S. dollar, the Euro, the Thai Baht and the Chinese Yuan. In 2018, approximately 71.8% of our revenues were denominated in foreign currencies, primarily in the NT dollar and the Thai Baht. As the revenues denominated in currencies other than U.S. dollar, Japanese Yen and Euro are converted into U.S. dollars for remittance of monthly royalty payments to us, any depreciation of the local currencies against the U.S. dollar will result in reduced license fees and monthly royalty payments in U.S. dollar terms and may materially and adversely affect our financial condition and results of operations.

While we receive monthly royalty revenues from our overseas licensees in foreign currencies, substantially all of our costs are denominated in Won. Our financial statements are also prepared and presented in Won. We receive monthly royalty payments from our overseas licensees based on a percentage of revenues confirmed and recorded at the end of each month applying the foreign exchange rate applicable on such date. Appreciation of the Won against the NT Dollar, the U.S. dollar, the Japanese Yen or other foreign currencies will result in foreign currency losses that may materially and adversely affect our results of operations and financial condition. See ITEM 5.A. “OPERATING RESULTS—OVERVIEW—Foreign currency effects.”

As of December 31, 2018, we have not entered into any outstanding foreign currency forward exchange contract. We may enter into hedging transactions in the future to mitigate our exposure to foreign currency exchange risks, but we may not be able to do so in a timely or cost effective manner, or at all.

Increased tensions with North Korea could adversely affect us and the price of our ADSs.

Relations between Korea and North Korea have been tense throughout Korea’s modern history. The level of tension between the two Koreas has fluctuated and may increase abruptly as a result of current and future events. In particular, there have been heightened security concerns stemming from North Korea’s nuclear weapons and ballistic missile programs and its hostile military actions against Korea. Some of the significant incidents in recent years include the following:

- North Korea renounced its obligations under the Nuclear Non-Proliferation Treaty in January 2003 and conducted six rounds of nuclear tests since October 2006, including claimed detonations of hydrogen bombs, which are more powerful than plutonium bombs, and warheads that can be mounted on ballistic missiles. Over the years, North Korea has also conducted a series of ballistic missile tests, including missiles launched from submarines and intercontinental ballistic missiles that it claims can reach the contiguous United States. In response, the Korean government has repeatedly condemned the provocations and flagrant violations of relevant United Nations Security Council resolutions. In February 2016, the Korean government also closed the inter-Korea Kaesong Industrial Complex in response to North Korea’s fourth nuclear test in January 2016. Internationally, the United Nations Security Council has passed a series of resolutions condemning North Korea’s actions and significantly expanding the scope of sanctions applicable to North Korea, including in December 2017 in response to North Korea’s intercontinental ballistic missile test in November 2017. Over the years, the United States and the European Union have also expanded their sanctions applicable to North Korea.

¶ In August 2015, two Korean soldiers were injured in a landmine explosion near the Korean demilitarized zone. Claiming the landmines were set by North Koreans, the Korean army re-initiated its propaganda program toward North Korea utilizing loudspeakers near the demilitarized zone. In retaliation, the North Korean army fired artillery rounds on the loudspeakers, resulting in the highest level of military readiness for both Koreas.

¶ In March 2010, a Korean naval vessel was destroyed by an underwater explosion, killing many of the crewmen on board. The Korean government formally accused North Korea of causing the sinking, while North Korea denied responsibility. Moreover, in November 2010, North Korea fired more than one hundred artillery shells that hit Korea’s Yeonpyeong Island near the Northern Limit Line, which acts as the de facto maritime boundary between Korea and North Korea on the west coast of the Korean peninsula, causing casualties and significant property damage. The Korean government condemned North Korea for the attack and vowed stern retaliation should there be further provocation.

North Korea’s economy also faces severe challenges, which may further aggravate social and political pressures within North Korea. Although three inter-Korean summits were held in April, May and September of 2018, respectively, and summits between the United States and North Korea were also held in June 2018 and in February 2019, there can be no assurance that the level of tension on the Korean peninsula will not escalate in the future. Any such further increase in tensions, which may occur, for example, if North Korea experiences a leadership or economic crisis, high-level contacts between Korea and North Korea break down or further military hostilities occur, could have a material adverse effect on the Korean economy and on our business, prospects, financial condition and results of operations

and could lead to a decline in the market value of our ADSs.

If the Korean government deems that emergency circumstances are likely to occur, it may restrict holders of our ADSs and the depositary from converting and remitting dividends and other amounts in U.S. dollars.

Under the Korean Foreign Exchange Transaction Law, if the Korean government deems that certain emergency circumstances, including sudden fluctuations in interest rates or exchange rates, extreme difficulty in stabilizing the balance of payments or substantial disturbance in the Korean financial and capital markets, are likely to occur, it may impose any necessary restrictions such as requiring Korean or foreign investors to obtain prior approval from the Minister of Strategy and Finance for the acquisition of Korean securities or the repatriation of interest, dividends or sales proceeds arising from disposition of such securities or other transactions involving foreign exchange. See ITEM 10.D. "EXCHANGE CONTROLS."

## RISKS RELATING TO OUR AMERICAN DEPOSITARY SHARES

The liquidity and price of our ADSs, and our ability to raise capital, may be negatively impacted if our ADSs are delisted from NASDAQ.

Our ADSs are currently listed for trading on the NASDAQ Global Market. There are a number of continuing requirements that must be met in order for our ADSs to remain listed on the NASDAQ Global Market, and the failure to meet these listing standards could result in the delisting of our ADSs by NASDAQ.

If our ADSs cease to be listed for trading on NASDAQ for any reason, the liquidity of our ADSs may be materially reduced and result in a corresponding material reduction in the price of our ADSs. Furthermore, any such delisting could harm our ability to raise capital on terms acceptable to us, or at all, and may result in the potential loss of confidence by investors, suppliers, business partners, licensees, customers and employees. Such consequences may materially and adversely affect our business, financial condition and results of operations.

The public shareholders of our ADSs may have more difficulty protecting their interests than they would as shareholders of a U.S. corporation.

Our corporate affairs are governed by our articles of incorporation and by the laws and regulations governing Korean corporations. The rights and responsibilities of our shareholders and members of our Board of Directors under Korean law may be different from those that apply to shareholders and directors of a U.S. corporation. For example, minority shareholder rights afforded under Korean law often require the minority shareholder to meet minimum shareholding requirements in order to exercise certain rights. Under applicable Korean law, of the total issued and outstanding shares, a shareholder must own at least (i) one percent to bring a shareholders' derivative lawsuit (or to demand that a director cease certain activity or conduct if there are concerns that a director may cause irrevocable damage to the company by acting in violation of applicable laws and regulations or the articles of incorporation), (ii) three percent to demand convocation of an extraordinary meeting of shareholders, demand removal of directors or inspect the books and related documents of a company, or to propose the agenda for a general meeting of shareholders, (iii) ten percent to apply to the court for dissolution if there is gross improper management or a deadlock in corporate affairs likely to result in a significant and irreparable harm to the company or to apply to the court for a reorganization in the case of an insolvency, and (iv) twenty percent to block a small scale share exchange or a small merger that may be approved only by a board resolution. In addition, while the facts and circumstances of each case will differ, the duty of care required of a director under Korean law may not be the same as the fiduciary duty of a director of a U.S. corporation. Although the "business judgment rule" concept exists in Korea, there is insufficient case law or precedent to provide guidance to the management and shareholders as to how it should be applied or interpreted. Holders of our ADSs may have more difficulty protecting their interests against actions of our management, members of our Board of Directors or controlling shareholders than they would as shareholders of a U.S. corporation.

Any dividends paid on our common shares will be in Won and fluctuations in the exchange rate between the Won and the U.S. dollar may affect the amount received by you.

If and when we declare cash dividends, the dividends will be paid to the depositary for the ADSs in Won and then converted by the depositary into U.S. dollars pursuant to the deposit agreement that governs the rights and obligations of the holders of ADSs. Fluctuations in the exchange rate between the Won and the U.S. dollar will affect, among other things, the U.S. dollar amounts you will receive from the depositary as dividends. Holders of ADSs may not receive dividends if the depositary does not believe it is reasonable or practicable to do so. In addition, the depositary may collect certain fees and expenses, at the sole discretion of the depositary, by billing the holders of ADSs for such charges or by deducting such charges from one or more cash dividends or other cash distributions from us to be distributed to the holders of ADSs.

Your ability to deposit or withdraw common shares underlying the ADSs into and from the depositary facility may be limited, which may adversely affect the value of your investment.

Under the terms of our deposit agreement, holders of our common shares may deposit such shares with the depositary's custodian in Korea and obtain ADSs, and holders of our ADSs may surrender the ADSs to the depositary and receive our common shares. However, to the extent that a deposit of common shares exceeds the difference between:

- the aggregate number of common shares we have consented to be deposited for the issuance of ADSs (including deposits in connection with offerings of ADSs and stock dividends or other distributions relating to ADSs); and
- the number of common shares on deposit with the custodian for the benefit of the depositary at the time of such proposed deposit, such common shares will not be accepted for deposit unless (i) our consent with respect to such deposit has been obtained or (ii) such consent is no longer required under Korean laws and regulations or under the terms of the deposit agreement.

Under the terms of the deposit agreement, no consent is required if the common shares are obtained through a dividend, free distribution, rights offering or reclassification of such shares. We might not consent to the deposit of any additional common shares. As a result, if a holder surrenders ADSs and withdraws common shares, the holder may not be able to subsequently deposit the common shares to obtain ADSs.

You may not be able to exercise preemptive rights or participate in rights offerings and as a result, you may experience dilution in your ownership percentage in us.

The Korean Commercial Code and our articles of incorporation require us, with some exceptions, to offer shareholders the right to subscribe for new common shares in proportion to their existing ownership percentages whenever new common shares are issued, except under certain circumstances as provided in our articles of incorporation. See ITEM 10.B. "MEMORANDUM AND ARTICLES OF INCORPORATION—Preemptive rights and issuance of additional shares."

Such exceptions include an offering of new shares, pursuant to a resolution of the Board of Directors:

- through a general public offering, of no more than 50% of the total number of issued and outstanding shares;
- to the members of the employee stock ownership association;
- upon exercise of a stock option in accordance with our articles of incorporation;
- in the form of depositary receipts of no more than 50% of the total number of issued and outstanding shares;
- to induce foreign direct investment necessary for business in accordance with the Foreign Investment Promotion Act of Korea, of no more than 50% of the total number of issued and outstanding shares;
- to the extent not exceeding 50% of the total number of issued and outstanding shares, to domestic or overseas financial institutions, corporations or individuals for the purpose of raising funds on an emergency basis;
- to certain companies under joint venture arrangements; or
- in a public offering or the new shares are underwritten by underwriters for the purpose of listing such shares on any stock exchange, to the extent not exceeding 50% of the total number of issued and outstanding shares.

Accordingly, if we issue new shares to non-shareholders based on such exceptions, existing holders of ADSs will be diluted. If none of the above exemptions is available under Korean law, we may be required to grant subscription rights when issuing additional common shares. However, under U.S. law, we would not be able to make those rights available in the United States unless we register the securities to which the rights relate or an exemption from the registration requirements of the Securities Act is available. Under the deposit agreement governing the ADSs, if we offer rights to subscribe for additional common shares, the depositary under the deposit agreement, after consultation with us, may make such rights available to you or dispose of such rights on behalf of you and make the net proceeds available to you or, if the depositary is unable to take such actions, it may allow the rights to lapse with no consideration to be received by you. The depositary is generally not required to make available any rights under any circumstances. We are under no obligation to file a registration statement



under the Securities Act to enable you to exercise preemptive rights in respect of the common shares underlying the ADSs, and we cannot assure you that any registration statement would be filed or that an exemption from the registration requirement under the Securities Act would be available. Accordingly, you may not be entitled to exercise preemptive rights and may thereby suffer dilution of your interests in the Company.

You will not be treated as our shareholder and you will not have shareholder rights such as the voting rights applicable to a holder of common shares.

As an ADS holder, we are not obligated to and we will not treat you as one of our shareholders and therefore, you will not have the rights of a shareholder. Korean law and our articles of incorporation govern the rights applicable to our shareholders. The depositary will be treated as the shareholder of the common shares underlying your ADSs. As a holder of ADSs, you will have ADS holder rights, which is governed by the deposit agreement among us, the depositary and you, as an ADS holder. Upon receipt of the necessary voting materials, you may instruct the depositary to vote the number of shares your ADSs represent. The depositary will notify you of shareholders' meetings and arrange to deliver our voting materials to you only when we deliver them to the depositary with sufficient time under the terms of the deposit agreement. If there is a delay or loss of the voting materials, we cannot ensure that you will receive voting materials or otherwise learn of an upcoming shareholders' meeting to ensure that you may instruct the depositary to vote your shares. In addition, the depositary and its agents are not responsible for failing to carry out voting instructions or for the manner of carrying out voting instructions.

You would not be able to exercise dissent and appraisal rights unless you have withdrawn the underlying common shares from the depositary facility and become a holder of our common stock.

In some limited circumstances, including the transfer of the whole or any significant part of our business, our acquisition of all or a part of the business of any other company having a material effect on our business, or our merger or consolidation with another company, except a small scale merger (as prescribed under Korean law) that leaves us as the surviving company, dissenting shareholders have the right to require us to purchase their shares under Korean law. However, if you hold our ADSs, you will not be able to exercise such dissent and appraisal rights unless you have withdrawn the underlying common shares from the depositary facility and become our direct shareholder prior to the record date for the shareholders' meeting at which the relevant transaction is to be approved.

We may amend the deposit agreement and the ADRs without your consent for any reason and, if you disagree, your option will be limited to selling the ADSs or withdrawing the underlying securities.

We may agree with the depositary to amend the deposit agreement and the ADRs without your consent for any reason. If an amendment adds or increases fees or charges, except for taxes and other governmental charges or expenses of the depositary, for registration fees, facsimile costs, delivery charges or similar items, or prejudices a substantial right of ADS holders, it will not become effective for outstanding ADRs until 30 days after the depositary notifies ADS holders of the amendment. At the time an amendment becomes effective, you are considered, by continuing to hold your ADSs, to agree to the amendment and to be bound by the ADRs and the deposit agreement as amended. If you do not agree with an amendment to the deposit agreement or the ADRs, your option is limited to selling the ADSs or withdrawing the underlying securities. No assurance can be given that the sale of ADSs would be made at a price satisfactory to you in such circumstances. In addition, the common shares underlying the ADSs are not listed on any stock exchange in Korea. Your ability to sell the underlying common shares following withdrawal and the liquidity of the common shares may be limited.

Dividend payments and the amount you realize upon a sale of our ADSs that you hold will be affected by fluctuations in the exchange rate between the U.S. dollar and the Korean Won.

Cash dividends, if any, in respect of the shares represented by our ADSs will be paid to the depositary in Korean Won and then converted by the depositary into U.S. dollars, subject to certain conditions. Accordingly, fluctuations in the

exchange rate between the Korean Won and the U.S. dollar will affect, among other things, the amounts a holder will receive from the depositary in respect of dividends, the U.S. dollar value of the proceeds that a holder would receive upon sale in Korea of the shares of our common stock obtained upon surrender of ADSs and the secondary market price of ADSs. Such fluctuations will also affect the U.S. dollar value of dividends and sales proceeds received by holders of our common stock.

You may be subject to Korean withholding tax.

Under Korean tax law, if you are a U.S. investor, you may be subject to Korean withholding taxes on capital gains and dividends in respect of the ADSs unless an exemption or a reduction under the income tax treaty between the United States and Korea is available. Under the Korea United States tax treaty, capital gains realized by holders that are residents of the United States eligible for treaty benefits will not be subject to Korean taxation upon the disposition of the ADSs. However, under the Korea United States tax treaty, the following holders are not eligible for such tax treaty benefits: (i) in case the holder is a United States corporation, if by reason of any special measures, the tax imposed on such holder by the United States with respect to such capital gains is substantially less than the tax generally imposed by the United States on corporate profits, and 25% or more of the holder's capital is held of record or is otherwise determined, after consultation between competent authorities of the United States and Korea, to be owned directly or indirectly by one or more persons who are not individual residents of the United States; and (ii) in case the holder is an individual, if such holder maintains a fixed base in Korea for a period or periods aggregating 183 days or more during the taxable year and the holder's ADSs or common shares giving rise to capital gains are effectively connected with such fixed base or such holder is present in Korea for a period or periods of 183 days or more during the taxable year.

You may have difficulty bringing an original action or enforcing any judgment obtained outside Korea against us and our directors and officers who are not U.S. persons.

We are organized under the laws of Korea, and all of our directors and officers reside outside the United States. While we have a wholly owned subsidiary in the United States, most of our assets and the assets of such persons are located outside the United States. As a result, it may not be possible for you to effect service of process within the United States upon these persons or to enforce against them or us court judgments obtained in the United States that are predicated upon the civil liability provisions of the federal securities laws of the United States or of the securities laws of any state of the United States. There is doubt as to the enforceability in Korea, either in original actions or in actions for enforcement of judgments of United States courts, of civil liabilities predicated on the federal securities laws of the United States or the securities laws of any state of the United States.

The transfer, sale or availability for sale of substantial amounts of our ADSs could adversely affect their market price.

GungHo beneficially owns 59.3% of our common shares. If GungHo decides to sell or transfer substantial amounts of our common shares into the form of ADSs in the public market or if there is a perception of its intent to sell, the market price of our ADSs could be materially and adversely affected and could materially impair our future ability to raise capital through offerings of our ADSs.

We may need additional capital and may sell additional ADSs or other equity securities or incur indebtedness, which could result in additional dilution to our shareholders or increase our debt service obligations.

We may require additional cash resources due to changed business conditions or other future developments, including any investments or acquisitions we may decide to pursue. If our cash resources are insufficient to satisfy our cash requirements, we may seek to sell additional equity or debt securities or obtain a credit facility. The sale of additional equity securities or equity-linked debt securities could result in additional dilution to our shareholders. The incurrence of indebtedness would result in increased debt service obligations and could result in operating and financing covenants that would restrict our operations. We cannot assure you that financing will be available in amounts or on terms acceptable to us, or at all.

## ITEM 4. INFORMATION ON THE COMPANY

### ITEM 4.A. HISTORY AND DEVELOPMENT OF THE COMPANY

We were incorporated as a company with limited liability under the Korean Commercial Code on April 4, 2000 under the legal name of Gravity Co., Ltd. On February 8, 2005, our ADSs, each representing one fourth of one share of our common stock, were listed on the NASDAQ Stock Market's NASDAQ Global Market. Other than from November 26, 2014 through August 27, 2018 (during which period our ADSs were traded on the NASDAQ Capital Market), our ADSs have been traded on the NASDAQ Global Market under the symbol "GRVY."

In January 2015, we entered into a development agreement with Dream Square to develop and distribute in China two mobile games based on the contents of Ragnarok Online. This agreement was amended in March 2016 to grant Dream Square an exclusive right to develop mobile games and web games based on the contents of Ragnarok Online and distribute such games in China for five years from the date of the amendment. Gravity retained the distribution rights in certain territories other than China. Under the terms of this agreement, the Company has a right to collect royalties that exceed the minimum guaranteed advance payment. In July 2017, we further entered into a publishing and technical support agreement ("PTSA") with Dream Square and Xindong, whereby the former would provide technical assistance and profits would be shared. This agreement was amended in September 2018 and again in October 2018, whereby certain technical assistance expenses and profit sharing proportions were further clarified. The PTSA, as amended, specifies that Gravity retains the distribution rights of the games developed in conjunction with Dream Square (with or without Xindong) in Korea, Taiwan, Hong Kong, Macau, as well as globally (other than in China, where the distribution rights are licensed to Xindong).

Recent developments relating to our organizational structure include the establishment of Gravity Game Tech Co., Ltd, a 99.9%-owned subsidiary in Thailand, in January 2019 and of PT. Gravity Game Link Co., Ltd, a 70%-owned joint venture in Indonesia, in February 2019.

Our registered office is located at 15F, 396 World Cup buk ro, Mapo gu, Seoul 121 795, Korea. Our telephone number is (822) 2132 7000. Our main Web site is at <http://www.gravity.co.kr>. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. That address is <http://www.sec.gov>.

### ITEM 4.B. BUSINESS OVERVIEW

#### OVERVIEW

Gravity is an online and mobile games developer and publisher based in Korea. We generate revenue from online games, mobile games and applications and other sources (including character based merchandise and animation). Our historical principal product, Ragnarok Online, is an online game which is available in 83 markets. Revenues from Ragnarok Online represented 11.2% of our revenues for the year ended December 31, 2018, compared to 26.5% of our total revenues in 2017.

Our focus on mobile games has increased in recent years, and mobile games and applications represented 83.5% of our total revenues for the year ended December 31, 2018. Our principal mobile game, Ragnarok M: Eternal Love, is available in 58 markets and accounted for 75.1% of our total revenues for the year ended December 31, 2018, compared to 26.1% of our total revenues in 2017. We intend to continue to diversify our product offering by developing online and mobile games in house or through outsourcing as well as publishing additional games developed by third parties.

Our main geographic markets in terms of revenues for the year ended December 31, 2018 were Taiwan, Korea, Thailand and the Philippines. In each of these countries, we are a leading developer and publisher of online and

mobile games based on the number of peak concurrent users (according to statistical data from publicly available sources in such countries).

## OUR PRODUCTS

### Online games

Online games are a genre of computer games in which a large number of players interact with one another within a virtual game world.

The following table summarizes the online games that we currently offer.

| Title                                  | Genre                                                                                 | Game Source                                                                          | Date of Commercial Launch <sup>(1)</sup> |
|----------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------|
| Ragnarok Online                        | Action adventure MMORPG <sup>(2)</sup>                                                | Developed in house                                                                   | August 2002                              |
| Requiem                                | Action adventure MMORPG                                                               | Developed in house                                                                   | October 2007                             |
| Dragonica (Dragon Saga) <sup>(3)</sup> | Action adventure MMORPG                                                               | Originally licensed from third party developer; currently owned by us <sup>(4)</sup> | February 2009 <sup>(5)</sup>             |
| Ragnarok Online II                     | Action adventure MMORPG                                                               | Developed in house                                                                   | March 2012                               |
| Ragnarok Prequel                       | Action adventure MMORPG                                                               | Developed by third party based on our intellectual property                          | July 2016 <sup>(6)</sup>                 |
| Ragnarok Clicker                       | (Web browser-based)<br>Action adventure RPG <sup>(7)</sup><br><br>(Web browser-based) | Developed through outsourcing and owned by us                                        | August 2016                              |

#### Notes:

- (1) The actual date of commercial launch of games in each jurisdiction is dependent on a variety of factors, including technical viability and durability, availability of in house development capability, market conditions, beta testing results and availability of licensing partners, among others.
  - (2) MMORPG is an abbreviation for Massively Multiplayer Online Role-playing Game.
  - (3) Dragonica is commercially offered in the United States, Canada and South America except for Brazil under the name Dragon Saga.
  - (4) We acquired an aggregate of 50.83% equity interest in Gravity Games Corporation (“Gravity Games”), formerly known as Barunson Interactive, which developed Dragonica, on October 21, 2010, and subsequently increased our ownership in Gravity Games to 85.5% in August 2013. Due to the liquidation of Gravity Games, Gravity took over Dragonica IP.
  - (5) Dragonica was initially launched in China in February 2009 followed by certain other countries and markets under license agreements between Gravity Games and local publishers before our acquisition of Gravity Games.
  - (6) Dream Square, the developer, commercially launched Ragnarok Prequel in China in May 2015. We commercially launched this game in Taiwan as the game’s publisher in July 2016.
  - (7) RPG is an abbreviation for Role-playing Game.
- We ceased offering R.O.S.E. online (Action adventure MMORPG) on February 11, 2019. We ceased offering Point Blank (MMOFPS) on April 15, 2019.

#### Ragnarok Online

Ragnarok Online is an action adventure based MMORPG that combines cartoon like characters, community oriented themes and combat features in a virtual world within which thousands of players can interact with another. By combining highly interactive and community oriented themes and features, such as marriages and organization of guilds, we believe we are able to create user loyalty from our users who favor games that provide social interaction in

a virtual setting.

Ragnarok Online was first commercially launched in August 2002 and, as of March 31, 2019, was commercially offered in 83 markets. See ITEM 4.B. “BUSINESS OVERVIEW—OUR MARKETS—Online Games.” Ragnarok Online

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represented 11.2% of our total revenues or Won 31,994 million (US\$28,750 thousand) in 2018, compared with 26.5% of our total revenues or Won 37,483 million in 2017. Gravity, either directly or through a subsidiary, operates Ragnarok Online in each geographic market other than Japan, Southeast Asia, Europe and Russia/CIS, where a third-party licensee operates the game. In markets where we or our subsidiary operates Ragnarok Online, our revenues are generated through subscription fees, and in markets where a third-party licensee operates the game, our revenues are generated through royalty or licensing fees.

We believe that the PC configurations required to run Ragnarok Online are lower than or similar to many other competing online games, which we believe has facilitated our successful entry into and expansion of Ragnarok Online in many of the developed and developing countries in which Ragnarok Online is distributed. The recommended minimum PC configuration for Ragnarok Online is Intel Celeron 2.4 GHz or AMD Athlon 3000+, 512 MB RAM and 32 MB graphics card.

The table below provides, for the periods indicated, the peak concurrent users and average concurrent users of Ragnarok Online since the first quarter of 2016, in each of our principal markets for Ragnarok Online.

|            |                    | 1Q 16  | 2Q 16  | 3Q 16  | 4Q 16  | 1Q 17  | 2Q 17  | 3Q 17  | 4Q 17  | 1Q 18  | 2Q 18  | 3Q 18  | 4Q 18  | 1Q 19  |
|------------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| an         | PCU <sup>(1)</sup> | 14,874 | 15,176 | 14,285 | 12,081 | 13,165 | 13,133 | 12,075 | 11,900 | 11,254 | 10,203 | 10,427 | 11,129 | 9,800  |
|            | ACU <sup>(2)</sup> | 5,893  | 6,170  | 4,945  | 4,558  | 5,136  | 5,458  | 4,705  | 4,852  | 4,643  | 4,671  | 4,198  | 4,575  | 4,450  |
| rea        | PCU                | 5,247  | 4,119  | 4,075  | 6,296  | 4,488  | 5,132  | 5,314  | 21,740 | 11,437 | 6,353  | 6,059  | 4,990  | 5,120  |
|            | ACU                | 3,080  | 2,339  | 2,370  | 2,900  | 2,807  | 2,931  | 2,896  | 4,560  | 6,042  | 3,480  | 3,159  | 2,708  | 3,110  |
| A/<br>ada  | PCU                | 7,516  | 7,141  | 6,504  | 6,419  | 6,402  | 6,824  | 6,221  | 6,485  | 6,364  | 6,282  | 4,797  | 4,531  | 3,290  |
|            | ACU                | 6,133  | 5,671  | 5,015  | 5,528  | 5,350  | 5,606  | 5,275  | 5,571  | 5,425  | 4,299  | 3,639  | 3,227  | 2,590  |
| wan/<br>ng |                    |        |        |        |        |        |        |        |        |        |        |        |        |        |
| ng/<br>cau | PCU                | 35,158 | 38,427 | 53,222 | 41,735 | 26,076 | 21,290 | 49,867 | 18,702 | 16,383 | 15,195 | 12,480 | 10,300 | 13,000 |
|            | ACU                | 24,444 | 17,135 | 31,821 | 23,752 | 15,767 | 11,876 | 11,890 | 9,887  | 7,894  | 6,539  | 6,521  | 5,504  | 6,220  |

#### Notes:

(1) “PCU,” or peak concurrent users, represents the highest number of users of Ragnarok Online during the specified time period as recorded on the servers for the various countries.

(2) “ACU,” or average concurrent users, represents the average number of concurrent users of Ragnarok Online during the specified time period as recorded on the servers for the various countries.

We believe that the number of users as measured by PCU or ACU (i) is a measure of our active user base and (ii) is correlated with revenues, as revenues from an online game depend on the number of users as well as time spent playing the game. PCU and ACU associated with, and revenues generated from, Ragnarok Online have decreased since 2013, largely because user preferences are shifting to mobile games, where we have an increased focus. PCU and ACU are non-financial variables and the data presented has not been audited or reviewed. Other companies may determine PCU or ACU differently than we do.

The following table provides a breakdown of the revenues generated by Ragnarok Online in certain key markets for the periods indicated:

| Revenue Type                               | Country                               | 2016     | 2017    | 2018     | 2018 <sup>(1)</sup> |
|--------------------------------------------|---------------------------------------|----------|---------|----------|---------------------|
| (In millions of Won and thousands of US\$) |                                       |          |         |          |                     |
| Online games—subscription                  |                                       |          |         |          |                     |
| revenue                                    | Taiwan/Hong Kong/Macau                | ₩ 11,019 | ₩15,094 | ₩ 9,745  | US\$ 8,757          |
|                                            | Korea                                 | 4,332    | 4,862   | 6,645    | 5,971               |
|                                            | United States/Canada <sup>(2)</sup>   | 2,178    | 3,208   | 2,840    | 2,552               |
|                                            | Subtotal                              | 17,529   | 23,164  | 19,230   | 17,280              |
| Online games—royalties and                 |                                       |          |         |          |                     |
| license fees                               | Japan                                 | 8,470    | 9,404   | 9,440    | 8,482               |
|                                            | Thailand                              | 2,165    | 2,026   | 1,424    | 1,279               |
|                                            | Brazil <sup>(3)</sup>                 | 529      | 867     | 640      | 576                 |
|                                            | Philippines <sup>(4)</sup>            | —        | 883     | 533      | 479                 |
|                                            | Indonesia                             | 106      | 711     | 230      | 207                 |
|                                            | Europe                                | 140      | 134     | 88       | 79                  |
|                                            | Taiwan/Hong Kong/Macau <sup>(5)</sup> | 507      | —       | —        | —                   |
|                                            | Other                                 | —        | 294     | 409      | 368                 |
|                                            | Subtotal                              | 11,917   | 14,319  | 12,764   | 11,470              |
|                                            | Total                                 | ₩ 29,446 | ₩37,483 | ₩ 31,994 | US\$ 28,750         |

Notes:

- (1) For convenience only, the Won amounts are expressed in U.S. dollars at the rate of Won 1,112.85 to US\$1.00, the noon buying rate in effect on December 31, 2018 as certified by the Federal Reserve Bank of New York for customs purposes.
- (2) Includes subscription and other types of game revenues managed by Gravity Interactive, Inc. (“Gravity Interactive”) and generated in countries other than the United States and Canada. Such revenues from other countries constitute an immaterial portion of the revenues recorded as subscription revenues from the United States and Canada.
- (3) Ragnarok Online game service in Brazil by our former licensee Level Up! Interactive S.A. ceased on November 9, 2018. The revenues generated from Brazil on or before November 9, 2018 are shown as “Online game revenue—Royalties and license fees—Brazil” and those revenues generated by Gravity Interactive since November 10, 2018 are shown as “Online game revenue—Subscription revenue—United States/Canada.”
- (4) We entered into a license agreement with Electronic Extreme Ltd. for Ragnarok Online game service in the Philippines, Singapore, Malaysia. Electronics Extreme Ltd. relaunched Ragnarok Online in the Philippines on June 29, 2017; and in Singapore and Malaysia on November 30, 2017. Revenues generated in the Philippines through June 28, 2017 are

shown as “Online games—subscription revenue—United States/Canada,” and revenues generated after June 29, 2017 are shown as “Online games—royalties and license fees—Philippines.” Revenues generated in Singapore and Malaysia through November 30, 2017 are shown as “Online games—subscription revenue—United States/Canada,” and revenues generated after November 30, 2017 are shown as “Online games—royalties and license fees—Philippines.”

(5) Ragnarok Online game service in Taiwan, Hong Kong and Macau by our former licensee Game Flier International Corporation ceased on May 31, 2016. We relaunched the game in such jurisdictions on June 15, 2016. Upon these changes, the revenues generated in Taiwan, Hong Kong and Macau through May 31, 2016 are shown as “Online games—royalties and license fees—Taiwan/Hong Kong/Macau” and those generated from June 15, 2016 are shown as “Online games—subscription revenue—Taiwan/Hong Kong Macau.”

We obtained an exclusive license from Mr. Myoung Jin Lee to use the storyline and characters from his cartoon titled “Ragnarok” for the development of games including for animation and character merchandising. We paid Mr. Lee an initial license fee of Won 40 million and are required to pay royalties based on a percentage of adjusted revenues (net of value added taxes and certain other expenses) or net income generated from the use of the Ragnarok brand through January 2033.

On December 27, 2017, we launched Ragnarok Zero, a new version of Ragnarok Online, in Korea. New game features were introduced for Ragnarok Zero, such as updated quests, improved user interface, premium character service and new item upgrade systems.

#### Requiem

Unlike Ragnarok Online and Ragnarok Online II, which do not emphasize violent themes, we designed Requiem to showcase user to user combat. Requiem provides players with a variety of combat systems, which allow them to accumulate experience and reward points to be used when they buy special items designed for combat.

We currently offer Requiem (through our subsidiary Gravity Interactive) globally except in Taiwan, Hong Kong, Macau and Europe (excluding Russia and CIS). The amount of revenues from Requiem represented less than 1% of our total revenues in each of 2018 and 2017.

#### Dragonica (Dragon Saga)

Dragonica is a three dimensional side scrolling MMORPG that was developed by Gravity Games, our 85.5%-owned subsidiary which was liquidated in September 2018. Dragonica is currently offered globally (either directly or through our subsidiary Gravity Interactive) except in Thailand and Europe (excluding Russia and CIS). Dragonica is offered under the name Dragon Saga in the United States, Canada and South America except for Brazil. Our local licensee offered Dragonica in Thailand from February 2016 to February 2018. The amount of revenues from Dragonica represented less than 1% of our total revenues in each of 2018 and 2017.

#### Ragnarok Online II

Ragnarok Online II, an action adventure based three dimensional MMORPG, is a sequel to Ragnarok Online with enhanced character and community features. Ragnarok Online II includes pastel type graphics, advanced character customization and detailed monsters and non player characters. Ragnarok Online II also adopts Mr. Myoung Jin Lee’s original drawings from his comic book Ragnarok and music from Kanno Yoko, a well respected composer in the animation industry. Ragnarok Online II is currently offered globally except in China, Taiwan, Hong Kong, Macau and Europe (excluding Russia and CIS). We or our subsidiaries currently manage the operations of Ragnarok Online II.

Ragnarok Online II represented less than 1% of our total revenues in 2018 and 1% of our total revenues or Won 1,458 million in 2017. See ITEM 3.D. “RISK FACTORS—RISKS RELATING TO OUR BUSINESS—If we are unable to consistently and timely develop, acquire, license, launch, market or operate commercially successful online and mobile games, our business, financial condition and results of operations may be materially and adversely affected.”



### Ragnarok Prequel

Ragnarok Prequel is a Web browser based MMORPG, which is played on a Web browser and which does not require any installation of software by users. Ragnarok Prequel was developed by a third party game developer using our intellectual property. See ITEM 4.B. “BUSINESS OVERVIEW—GAME DEVELOPMENT AND PUBLISHING—Intellectual property licensing.” In May 2013, we entered into an agreement with Dream Square, a Chinese game developer, which was granted the right to develop a Web browser-based game based on Ragnarok Online and distribute the Web browser based game in China under the agreement. Dream Square soft launched Ragnarok Prequel in China in October 2013, suspended such game from October 2014 for additional development and localization, and commercially relaunched the game in May 2015. We commercially launched Ragnarok Prequel in Taiwan, the United States and Canada, Thailand, the Philippines and Brazil in July 2016, March 2017, September 2017, December 2017 and May 2018, respectively.

Ragnarok Prequel represented approximately 2.1% of our total revenues or Won 6,106 million (US\$5,487 thousand) in 2018 and approximately 8.2% of our total revenues or Won 11,604 million in 2017.

### Ragnarok Clicker

Ragnarok Clicker is a Web browser-based RPG which is currently offered (through our subsidiary Gravity Interactive) globally except in Europe (excluding Russia and CIS). We developed Ragnarok Clicker in 2016 through a game development agreement with Playsaurus, Inc., a game developer in the United States. Under the agreement with Playsaurus, we retained all intellectual property rights associated with the game. Ragnarok Clicker represented less than 1% of our total revenues in each of 2018 and 2017.

### Mobile games and applications

As compared to online games, mobile games, which are played using mobile phones, including smartphones such as Google Android compatible phones and the Apple iPhone as well as feature phones, and other mobile devices, such as tablet computers, have shorter game playtimes and less complex user game interactions. We believe that mobile games, due to such characteristics, provide less experienced users with a means to become familiar with both game playing and the game culture without making a substantial commitment in time and resources. As a result, we believe that mobile games allow us to target a broader audience of users.

We develop mobile games either in-house or through outsourcing to third party developers, and we also publish mobile games licensed from third parties. In contrast to online games, the life cycle of a mobile game is relatively short and generally lasts from six to 24 months while reaching its peak popularity within the first 3 months of its introduction, though it varies by genre. As a result, we generate a significant portion of our mobile games revenue from the games that have been released within the recent 12 months.

The following table sets forth each of the mobile games that we have released since January 2018.

|                                         |        |                        | Date of Commercial |
|-----------------------------------------|--------|------------------------|--------------------|
| Title                                   | Genre  | Service Area           | Launch             |
| Ragnarok M: Eternal Love <sup>(1)</sup> | MMORPG | Taiwan/Hong Kong/Macau | October 2017       |
|                                         |        | Korea                  | March 2018         |
|                                         |        | Southeast Asia         | October 2018       |

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|                                |          |                                 |                |
|--------------------------------|----------|---------------------------------|----------------|
| Ragnarok R <sup>(1)</sup>      | Card RPG | North/South America and Oceania | January 2019   |
|                                |          | North America                   | January 2018   |
| RO: Idle Poring <sup>(1)</sup> | Text RPG | Indonesia                       | September 2018 |
|                                |          | Korea                           | January 2018   |
| Burst <sup>(2)</sup>           | AOSRPG   | Korea                           | December 2018  |

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|                                    |              |                                      |               |
|------------------------------------|--------------|--------------------------------------|---------------|
| Valor Guard Tactics <sup>(2)</sup> |              | States/Canada/Singapore/Malaysia/the |               |
|                                    |              | Philippines                          |               |
| Dawn Break <sup>(2)</sup>          | MMO ARPG     | Korea                                | January 2019  |
| MR! PORORO <sup>(2)</sup>          | Autoplay RPG | Global                               | February 2019 |
| Ragnarok CRUSH <sup>(1)</sup>      | Puzzle       | Global                               | March 2019    |
| RO Click H5 <sup>(1)</sup>         | Idle RPG     | Korea                                | April 2019    |

## Notes:

(1) Developed by a third party based on our intellectual property.

(2) Licensed from a third party developer through licensing arrangements.

The following are revenues generated from our mobile games and applications business for the periods indicated:

| Country         | Year Ended December 31,                    |          |           |                     |
|-----------------|--------------------------------------------|----------|-----------|---------------------|
|                 | 2016                                       | 2017     | 2018      | 2018 <sup>(1)</sup> |
|                 | (In millions of Won and thousands of US\$) |          |           |                     |
| Taiwan          | ₩ 1,203                                    | ₩ 49,644 | ₩ 83,770  | US\$ 75,275         |
| Korea           | 6,506                                      | 17,158   | 65,963    | 59,274              |
| Thailand        | 3                                          | 4,274    | 42,159    | 37,884              |
| The Philippines | —                                          | —        | 14,189    | 12,750              |
| Indonesia       | —                                          | 364      | 8,850     | 7,953               |
| United States   | 1,204                                      | 2,634    | 6,736     | 6,053               |
| China           | 2,098                                      | 3,848    | 2,864     | 2,574               |
| Others          | 1,027                                      | 4,702    | 14,958    | 13,440              |
| Total           | ₩ 12,041                                   | ₩ 82,624 | ₩ 239,489 | US\$ 215,203        |

## Notes:

(1) For convenience only, the Won amounts are expressed in U.S. dollars at the rate of Won 1,112.85 to US\$1.00, the noon buying rate in effect on December 31, 2018 as certified by the Federal Reserve Bank of New York for customs purposes.

## Ragnarok M: Eternal Love

Ragnarok M: Eternal Love is a MMORPG which we offer in 58 markets across Taiwan, Hong Kong and Macau, Korea, Southeast Asia, North and South America and Oceania. The game was developed by Gravity and Dream Square, together with co-developer Xindong. We commenced our service for Ragnarok M: Eternal Love in Taiwan in October 2017, Korea in March 2018, Southeast Asia in October 2018 and North and South America and Oceania in January 2019.

For the year ended December 31, 2018, Ragnarok M: Eternal Love represented 75.1% of our total revenues or Won 215,391 million (US\$193,549 thousand), compared with 26.1% of our total revenues or Won 36,975 million in 2017.

## Ragnarok R (locally named Ragnarok Rush in North America and Indonesia)

Ragnarok R is a card RPG which we offer in Taiwan, Hong Kong and Macau, Thailand, Korea, the United States/Canada and Indonesia. Ragnarok R was developed by Gravity and Dream Square. We commenced our service for Ragnarok R in Taiwan in December 2016, Thailand in February 2017, Korea in April 2017, the United States/Canada in January 2018 and Indonesia (through our licensee PT Laut Angkasa Impian (Gravindo)) in September 2018.

As of March 31, 2019, Ragnarok R was commercially offered in eight markets. For the year ended December 31, 2018, Ragnarok R represented 1.2% of our total revenues or Won 3,573 million (US\$3,211 thousand), compared with 13.4% of our total revenues or Won 18,925 million in 2017.

## RO: Idle Poring

RO: Idle Poring is a text RPG which we offer globally other than in Japan, Europe and China. RO: Idle Poring was developed by Gravity and Dream Square, together with co-developer with Xindong. We commenced our service for RO: Idle Poring globally other than in China, Japan and Europe in September 2017. We launched RO: Idle Poring in Korea in January 2018.

For the year ended December 31, 2018, RO: Idle Poring represented 2.7% of our total revenues or Won 7,700 million (US\$6,919 thousand), compared with 7.1% of our total revenues or Won 10,119 million in 2017.

## Other games and game related products and services

### Other games

In addition to developing and publishing online games and mobile games, which is our primary business, we also provide games for game consoles and handheld game consoles, such as Nintendo DS, the Xbox 360 and the PlayStation series. Console games are distributed in the form of a disc or cartridge (game card), or downloaded directly to a console through the Internet.

The following table sets forth the console games we have released.

| Title                                        | Genre                 | Platform             | Release Date  |
|----------------------------------------------|-----------------------|----------------------|---------------|
| Ragnarok DS                                  | Role playing          | Nintendo DS          | December 2008 |
| Ragnarok: The Princess of Light and Darkness | Tactical role playing | PlayStation Portable | October 2011  |
| Ragnarok Odyssey                             | Role playing          | PlayStation Vita     | February 2012 |

|                      |              |                  |             |
|----------------------|--------------|------------------|-------------|
| Double Dragon II     | Action       | Xbox 360         | April 2013  |
| Ragnarok Odyssey Ace | Role playing | PlayStation Vita | August 2013 |
| Ragnarok Odyssey Ace | Role playing | PlayStation 3    | April 2014  |

We also provide games for IPTV. In September 2008, we entered into a licensing agreement with Iconix Entertainment Co., Ltd., or “Iconix Entertainment,” to develop and publish Pororo Game, an IPTV game based on Iconix Entertainment’s 3D TV animation series “Pororo: The Little Penguin.” We commercially launched Pororo Game in September 2009. Our licensing agreement with Iconix Entertainment has been renewed annually since its inception including, most recently, in September 2018.

The amount of revenues from console and IPTV games represented less than 1% of our total revenues in each of 2018 and 2017.

#### Game character merchandising

In order to optimize the commercial opportunities presented by our games and their characters, we and our licensees have been marketing dolls, stationery, food and other character based merchandise, as well as game manuals, monthly magazines and other publications, based on our games. We currently have arrangements with GungHo to license Ragnarok Online’s game characters in Japan, and with Electronics Extreme Ltd. to license Ragnarok Online game characters in Thailand.

The amount of revenues from game character merchandising represented less than 1% of our total revenues in each of 2018 and 2017.

#### Other services

In addition to its core mobile game business, NeoCyon, Inc. (“NeoCyon”) provides system development and maintenance services as well as system integration services to third parties. The amount of revenues from such other services represented 2.7% of our total revenues or Won 7,702 million (US\$6,921 thousand) for the year ended December 31, 2018, compared with 4.4% of our total revenues or Won 6,209 million in 2017.

#### OUR MARKETS

Our biggest geographic markets in terms of revenue for the year ended December 31, 2018 were Taiwan, Korea, Thailand, the Philippines, United States and Canada, Japan and Indonesia. The following table sets forth a summary of our consolidated statement of operations showing revenues by geographic area for the periods indicated and the percentage represented by such revenues for the year ended December 31, 2018.

| Country                             | Year Ended December 31,                                        |           |           | 2018 <sup>(1)</sup> |              |
|-------------------------------------|----------------------------------------------------------------|-----------|-----------|---------------------|--------------|
|                                     | 2016                                                           | 2017      | 2018      |                     |              |
|                                     | (In millions of Won and thousands of US\$, except percentages) |           |           |                     |              |
| Taiwan                              | ₩ 16,517                                                       | ₩ 76,121  | ₩ 98,210  | 34.2 %              | US\$ 88,251  |
| Korea                               | 14,770                                                         | 28,708    | 80,814    | 28.2                | 72,619       |
| Thailand                            | 2,262                                                          | 6,569     | 43,846    | 15.3                | 39,400       |
| The Philippines                     | —                                                              | 883       | 15,539    | 5.4                 | 13,963       |
| United States/Canada <sup>(2)</sup> | 5,130                                                          | 7,774     | 10,572    | 3.7                 | 9,499        |
| Japan                               | 9,274                                                          | 9,491     | 9,767     | 3.4                 | 8,778        |
| Indonesia                           | 110                                                            | 1,075     | 9,359     | 3.3                 | 8,410        |
| Others                              | 3,333                                                          | 11,002    | 18,663    | 6.5                 | 16,770       |
| Total                               | ₩ 51,396                                                       | ₩ 141,623 | ₩ 286,770 | 100.0%              | US\$ 257,690 |

## Notes:

- (1) For convenience only, the Won amounts are expressed in U.S. dollars at the rate of Won 1,112.85 to US\$1.00, the noon buying rate in effect on December 31, 2018 as certified by the Federal Reserve Bank of New York for customs purposes.
- (2) Revenues in the United States and Canada, as shown on this table, also include subscription and other types of game revenues generated in other countries managed by Gravity Interactive. Such revenues from other countries constitute an immaterial portion of the revenues recorded as subscription revenues from the United States and Canada.

## Online games

We manage and distribute (directly or through our subsidiaries) online game operations in Korea, Taiwan, Hong Kong/Macau and the United States/Canada, and we work with licensees to manage and distribute our games in other markets. Our licensees pay us an initial license fee and/or ongoing royalty payments based on a percentage of revenues generated from subscription fees and/or micro transactions of the game they service in the respective overseas markets. In addition, if the license agreement is renewed, we typically negotiate a renewal license fee. The license agreements may be terminated in the event of bankruptcy or a material breach by either party, including, in our case, in the event the licensee fails to pay royalty fees in a timely manner.

Ragnarok Online is commercially offered in the 83 countries and markets, including Japan, Taiwan, Hong Kong, Macau, the United States, Canada, Thailand and others. We or our subsidiaries manage the distribution of Ragnarok Online in each market other than in Japan, China, the Philippines, Singapore, Malaysia, Thailand, Indonesia, Russia/CIS and 28 European countries and markets. In each of these markets, local licensees publish Ragnarok Online. The following table lists the overseas countries and markets in which Ragnarok Online is commercially offered through our licensees, the names of the licensees, the dates of the license agreements, and the commercial launch dates and expiry dates of the license agreements.

| Country                           | Licensee                                     | Date of License Agreement | Date of Commercial Launch | Date of Expiry |
|-----------------------------------|----------------------------------------------|---------------------------|---------------------------|----------------|
| Japan                             | GungHo Online Entertainment, Inc.            | July 2002                 | December 2002             | September 2019 |
| Thailand <sup>(1)</sup>           | Electronics Extreme Ltd.                     | April 2016                | March 2003                | July 2019      |
| Europe <sup>(2)</sup>             | Whybe Online                                 | June 2011                 | April 2004                | June 2021      |
| China <sup>(3)</sup>              | Shanghai Ta Ren Network Technology Co., Ltd. | October 2016              | February 2013             | TBD            |
| Indonesia <sup>(4)</sup>          | PT. Laut Angkasa Impian.                     | December 2016             | November 2003             | August 2019    |
| The Philippines <sup>(5)</sup>    | Electronics Extreme Ltd.                     | January 2017              | September 2003            | June 2019      |
| Singapore/Malaysia <sup>(5)</sup> | Electronics Extreme Ltd.                     | January 2017              | April 2004                | June 2019      |
| Russia and CIS <sup>(6)</sup>     | Innova Intellectual Properties S.a.r.l       | February 2018             | March 2007                | February 2020  |

## Notes:

- (1) Ragnarok Online was initially launched in Thailand with a different licensee in March 2003.

- (2) Represents game operations in France, Belgium, the United Kingdom, Finland, Sweden, Norway, Ireland, Scotland, Denmark, Spain, Austria, Bulgaria, Cyprus, Czech Republic, Germany, Greece, Hungary, Italy, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Switzerland and Turkey. Ragnarok Online was initially launched in Germany, Austria, Switzerland, Italy and Turkey with a different licensee in April 2004.
- (3) Shanghai Ta Ren Network Technology Co., Ltd. is currently preparing to relaunch Ragnarok Online in China. The licensing agreement with Shanghai Ta Ren Network Technology Co., Ltd. will expire two years after the relaunch date. Ragnarok Online was initially launched in China with a different licensee in February 2013.

- (4) Ragnarok Online was initially launched in Indonesia with a different licensee in November 2003. PT. Laut Angkasa Impian is also known as Gravindo.
  - (5) Electronics Extreme Ltd. relaunched Ragnarok Online in the Philippines, Singapore and Malaysia in June 2017, November 2017 and November 2017, respectively. Ragnarok Online was initially launched with different licensees in the Philippines in September 2003 and in Singapore and Malaysia in April 2004.
  - (6) Ragnarok Online was initially launched in Russia and CIS with a different licensee in March 2007.
- Mobile games

With respect to mobile games, as of April 19, 2019, we directly manage the distribution of each of Ragnarok M: Eternal Love and RO: Idle Poring other than in China, and Ragnarok R/Ragnarok Rush other than in China and Indonesia, where we work with a third-party licensee to manage and distribute Ragnarok R/Ragnarok Rush.

## PRICING STRUCTURE AND PAYMENT SYSTEM

### Online games

Our online games, including Ragnarok Online, are priced using a combination of payment models. Historically, we used only a subscription-based fee model, whereby users paid an ongoing subscription fee to access our online games. In December 2006, we introduced micro-transactions (also known as sale of virtual in-game items), whereby players are able to purchase a wide array of items to customize, personalize and enhance their characters and game playing experiences. Micro-transaction purchases are available in all markets where Ragnarok Online is available. Since January 2007, we have allowed free-to-play servers applying the micro-transaction model in all markets where Ragnarok Online is available (other than in Japan and Thailand, which operate under a subscription fee plus micro-transaction model), whereby players may play Ragnarok Online free of any subscription fees and are encouraged to purchase in-game items.

Since September 2007, we have been offering premium services as an additional revenue model. Players may pay additional fees during a specified period of time in order to receive certain additional features, such as the faster accumulation of experience points or higher rates of item drops. Premium services are offered in all the countries and markets where Ragnarok Online is serviced, except Japan, Taiwan, Hong Kong and Macau.

Pricing structures are determined primarily based on the cost of publishing and operating the game, the playing and payment patterns of the users, the pricing of competing games in a given market and the purchasing power parity of consumers in that market. Since the launch of Ragnarok Online in August 2002, we have tracked and accumulated user data generated from our user base, which provide us with an extensive database to analyze user patterns and establish pricing for other markets. The pricing for Ragnarok Online has remained generally stable in each of our markets since the respective dates of Ragnarok Online's commercial launch in those markets.

In markets where we work with third-party licensees, such licensees develop, after consultation with us, a retail pricing structure for the users of the game they service in their respective markets. The pricing for Ragnarok Online in Korea and in Japan, the United States and Canada, and Taiwan/Hong Kong/Macau are set forth below.

### Korea

Individual PC account users in Korea can choose from a number of alternative payment options, including charges made through mobile or fixed telephone service provider payment systems, prepaid cards, gift certificates, online credit card payments and bank transfers, to buy G Cash which can be used for any games we offer and convert G Cash to RO Points, the currency of the money used in Ragnarok Online which enable them to buy game items. Internet café subscribers make payments through credit card or bank transfers. We pay a commission in the range of 1.4% to 15% or Won 200 per transaction to third parties to process payments. These third parties bear the delinquency risk associated with payments from users.



### Subscription based fee model

The subscription based fee model is currently applied only to Internet cafés and not individual PC users in Korea. The following table sets forth our published pricing plans for Internet cafés in Korea for Ragnarok Online access as of December 31, 2018.

| Flat Fee             |          |
|----------------------|----------|
| Hours <sup>(1)</sup> | per PC   |
| 300 hours            | ₩ 69,300 |
| 600 hours            | 138,600  |
| 1,000 hours          | 231,000  |
| 2,000 hours          | 462,000  |

Note:

(1) Actual hours may vary depending on additional bonus hours we offer in proportion to hours purchased by the subscriber.

### Micro transaction model

We have applied a micro transaction model in Korea since April 2007. The price range of each of the game items is between Won 400 and Won 29,800. There are certain game items which users can buy only at Internet cafés.

### Japan

GungHo, our licensee in Japan, determines the pricing plan for Ragnarok Online in Japan. A majority of users in Japan typically pay to gain access to or purchase game items of Ragnarok Online with prepaid cards, such as WebMoney, among others, which can be purchased at convenience stores or retail game outlets, or online. In addition, credit cards are also a popular payment method. Mobile payment, which can be used for the payment of subscription-based fees and for payments of micro transactions, is popular in Japan as well.

### Subscription based fee model

Our licensee in Japan offers only one rate for Ragnarok Online and charges JPY1,500 per 30 days of unlimited use.

## Micro transaction model

We have applied a micro transaction model in Japan since December 2006. Game users buy GungHo Shop Points which enable them to buy game items or directly buy game items from the mobile item shop. The price range of the game items is between JPY50 and JPY2,000. The following table sets forth our licensee's published basic pricing for GungHo Shop Points in Japan as of December 31, 2018.

| Points         | Retail Price <sup>(1)</sup> |
|----------------|-----------------------------|
| 10,000 points  | JPY 1,000                   |
| 21,000 points  | 2,000                       |
| 32,500 points  | 3,000                       |
| 55,000 points  | 5,000                       |
| 112,000 points | 10,000                      |

## Note:

(1)For convenience only, on December 31, 2018, the noon buying rate of Japanese Yen to U.S. dollars as certified by the Federal Reserve Bank of New York for customs purposes was JPY109.70 to US\$1.00.  
The United States and Canada

Gravity Interactive, our wholly owned subsidiary in the United States, determines the pricing plan for Ragnarok Online in the United States and Canada. Users pay through credit cards, wire and/or bank transfers, or mobile payment or online payment systems such as PayPal. Gravity Interactive ceased to apply the subscription based fee model in April 2011.

## Micro transaction model

We have applied a micro transaction model in the United States and Canada since June 2007. Game users buy points which enable them to buy game items in the price range between US\$0.05 and US\$20. The following table sets forth Gravity Interactive's published basic pricing for points of Ragnarok Online in the United States and Canada as of December 31, 2018.

| Points        | Retail Price |
|---------------|--------------|
| 1,100 points  | US\$ 10.00   |
| 1,650 points  | 15.00        |
| 2,875 points  | 25.00        |
| 4,600 points  | 40.00        |
| 6,000 points  | 50.00        |
| 9,000 points  | 75.00        |
| 12,000 points | 100.00       |

## VIP service fee model

Although Ragnarok Online is offered based on the micro transaction model in the United States and Canada, the VIP Service fee model, a premium service model, was introduced in April 2011 to provide users with enhanced game play as an option. The following table sets forth Gravity Interactive's published basic pricing for VIP Service for Ragnarok Online in the United States and Canada as of December 31, 2018.

| Days and Points                          | Retail Price |
|------------------------------------------|--------------|
| 7 days                                   | US\$ 2.00    |
| 30 days                                  | 7.00         |
| 30 days and 1,500 points <sup>(1)</sup>  | 15.00        |
| 90 days                                  | 19.00        |
| 180 days                                 | 33.50        |
| 130 days and 7,000 points <sup>(1)</sup> | 70.00        |

Note:

(1) Once a user purchases this package, the user cannot purchase it again before the period of the purchased package ends.

Taiwan/Hong Kong/Macau

## Micro transaction model

We have been directly providing Ragnarok Online in Taiwan, Hong Kong and Macau since June 15, 2016. We apply a micro-transaction model for users in Taiwan, Hong Kong and Macau which enables them to buy game items in the price range between NT\$1 and NT\$999. For purchases in currencies other than the NT dollar, the price will be converted to local currency at the applicable exchange rate when users make the payment. The following table sets forth our basic pricing for points of Ragnarok Online in Taiwan, Hong Kong and Macau as of December 31, 2018.

| Points  | Retail Price |
|---------|--------------|
| 1 point | NT\$ 1.00    |

## Mobile games

For our mobile games, we apply a micro-transaction model by providing virtual item shops in the games where players can purchase a wide array of items to customize, personalize and enhance their characters and game playing experiences. In addition, a Gacha system (or a random box model to buy virtual in-game items) has been introduced in all the countries and markets where Ragnarok M: Eternal Love is serviced.

Taiwan/Hong Kong/Macau

For Ragnarok M: Eternal Love in Taiwan, Hong Kong and Macau, we apply a micro-transaction model, including a Gacha system, for users in these markets, which enables them to buy game items in the price range between NT\$60

and NT\$2,990 as of December 31, 2018. For purchases in currencies other than the NT dollar, the price will be converted to local currency at the applicable exchange rate when users make the payment. Users pay through credit cards, wire and/or bank transfers, or mobile payment or online payment systems such as MyCard.

Korea

For Ragnarok M: Eternal Love in Korea, we have applied a micro transaction model, including a Gatcha system, in Korea since March 2018. Game users buy virtual game items in the price range between Won 5,500 and Won 119,000 as of

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December 31, 2018. Users pay through credit cards, wire and/or bank transfers, or mobile payment or online payment systems.

Southeast Asia, North & South America and Oceania

For Ragnarok M: Eternal Love in Southeast Asia, North and South America and Oceania, we have applied a micro transaction model including a Gatcha system in Southeast Asia since October 2018 and in North and South America, and Oceania since January 2019. Game users buy virtual game items in the price range between US\$1.99 and US\$99.99 as of December 31, 2018. For purchases in currencies other than the U.S. dollar, the price will be converted to local currency at the applicable exchange rate when users make the payment. Users pay through credit cards, wire and/or bank transfers, or mobile payment or online payment systems such as PayPal.

## GAME DEVELOPMENT AND PUBLISHING

We expect the online and mobile game industries to be characterized by increasing demand for sophisticated or original games with the most up to date technologies and/or innovative game designs. In response, we intend to expand our game offerings by continuing to develop in house additional high quality games with the latest technologies and/or innovative game designs and by publishing such new games developed by us or licensed or acquired from leading third party developers.

To prepare for the commercial launch of a new online game, unlike most mobile games we conduct closed beta testing for the game to fix technical problems, which is followed by a period of open beta testing in which we allow registered users to play the game free of charge. During these testing periods, users provide us with feedback and our technical team seeks to address any technical problems and programming flaws that may compromise a stable and consistent game playing environment. We conduct several rounds of closed beta testing, which usually takes a few weeks for each round but may take significantly more time if material problems are detected. Open beta testing of online games usually takes one to three months before commercial launch. We generally commence our other marketing activities for online games during the open beta testing stage. For overseas markets, we also localize the language and content of our games to tailor the game to local cultural preferences.

### Game development

Our game development department is divided into two categories of development teams: one is dedicated to online games and the other is dedicated to mobile games. As of December 31, 2018, we employed a total of 149 game developers. We have developed Ragnarok Online, Ragnarok Online II, Requiem and some social network games and mobile games, such as Ragnarok Online: Uprising Valkyrie, in-house. In order to remain competitive, we are focusing our in house game development efforts on enhancing the game experience and on developing new games incorporating the latest technologies (including software improving the communication and interaction between players).

We also outsource development activities for our new games to third parties. For example, in March 2016, we entered into a game development agreement with Playsaurus, Inc, a developer in the United States, to outsource the development of Ragnarok Clicker to Playsaurus, Inc., using the contents of Ragnarok Online. We own all intellectual property rights relating to Ragnarok Clicker, which was commercially launched in August 2016 in the United States and Canada.

We develop new mobile games and related updates. We will continue to devote substantial resources to develop popular games with high revenue potential. Our in-house teams specialize in game planning, graphic design, research and development and game operation.

Our game development process generally includes the following key steps:

- concept generation;
- development of new game proposal and commencement of technical review;
- formulation of development projects;
- commencement of development;
- closed beta testing; and

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open beta testing.  
Publishing

We also seek opportunities to publish games developed by third parties if we determine such games have potential to become a commercial success. Our publishing and licensing processes include the following:

• **Preliminary screening.** Our preliminary screening process for a game usually includes preliminary review and testing of the game and discussions with the game developer on technological and operational aspects;

• **In depth examination, analysis and commercial negotiation.** Once a game passes preliminary screening, we thoroughly review and test the game, conduct a cost analysis, develop operational and financial projections and formulate a preliminary game operating plan. We then begin commercial negotiations with the developer;

- **Game rating and regulatory registration and approval.** Once a license agreement to publish and distribute a game is signed, we submit an application to the Game Rating and Administration Committee to obtain a game rating, except for mobile games, which are not required to be rated by the Game Rating and Administration Committee and may be rated by us as distributor. This process generally takes approximately 15 days. We also typically register our intellectual property rights in Korea under our license agreements, such as copyright and trademark, with the relevant Korean government agency. Our overseas subsidiaries or licensees follow similar procedures in their respective markets where the games we license are commercially offered; and

• **Testing and marketing.** Once the required registration and approvals are obtained, we conduct closed beta testing and open beta testing of the new game and assist the licensor with the development of the game, in the case of online games.

Our game business team takes the lead in conducting preliminary screenings to select games for potential distribution and the commercial negotiations process. The games initially screened by our game business team are additionally evaluated or tested by other teams, such as the marketing team and quality management team, for a second opinion. Once a license agreement is finalized, we generally create a specific team for the selected game within the marketing department to work with and guide the licensor through the beta testing and/or marketing process for a successful launch of the game.

## Intellectual property licensing

Intellectual property licensing is one of our means to diversify our game titles when we determine that certain intellectual property may be valuable in the development and publishing of new games.

We license out certain intellectual property and other rights to third party developers or to our subsidiaries for the development of new game titles.

We licensed Ragnarok Online to Dream Square, a game developer in China, in May 2013, which led to the development of Ragnarok Prequel, a Web browser-based game. Ragnarok Prequel has been commercially offered in China since May 2015 after its soft launch in October 2013 and its suspension from October 2014 for additional development and localization. See ITEM 4.B. “BUSINESS OVERVIEW—OUR PRODUCTS—Online games—Ragnarok Prequel.” We also signed a license and development agreement with the same developer in January 2015 to grant the developer the right to use the contents of Ragnarok Online to develop two mobile games, which was revised in March 2016 to grant the developer the exclusive right to develop mobile games and web games based on the contents of Ragnarok Online and distribute such games in China for five years from March 25, 2016. Such license and development agreement led to the development of Ragnarok R, RO: Idle Poring and Ragnarok M: Eternal Love. See ITEM 4.B. “BUSINESS OVERVIEW—OUR PRODUCTS—Mobile games and applications.”

We also entered into a license and development agreement with the same developer in December 2015, which granted the developer the right to develop two mobile games and one web game based on the contents of Dragonica and distribute such games in China and Taiwan, Hong Kong and Macau, the term of which will expire after two years from the commercial launch of such games in such markets. The contract expired on January 15, 2019.

We entered into an agreement with Electronics Extreme Ltd., a game developer and publisher in Thailand, in February 2017 which allowed Electronics Extreme Ltd. to use the contents of Ragnarok Online to develop one mobile game and publish such game in Thailand, the Philippines, Singapore and six other Asian countries.

Moreover, we license existing intellectual property from third parties for developing new games. In September 2008, we entered into a license agreement with Iconic Entertainment to develop Pororo Games, an IPTV game, based on a popular Korean television animation series “Pororo: The Little Penguin.” Pororo Games has been commercially offered since September 2009. In November 2015, we entered into another licensing agreement with Iconic Entertainment, which allowed Gravity to develop and publish games for various platforms based on Pororo: The Little Penguin. In January 2016, we entered into a game development agreement with White Beard Games (formerly known as 91F Games) to outsource the development of MR! Pororo, an RPG mobile game, based on the contents of Pororo: The Little Penguin. MR! Pororo was launched in September 2017 in Korea and in February 2019 globally.

We continue to seek more opportunities to license out existing intellectual properties or license in existing intellectual properties of third parties for game development and publishing.

## MARKETING

We employ a variety of traditional and online marketing programs and promotional activities, including in game events, in game marketing and offline events. Due to the close knit nature of the game community, we believe that word of mouth is an important medium for the promotion of our games.

In Korea, three independent promotional agents currently promote our online games to Internet cafés pursuant to agency agreements. Under these agreements, each promotional agent is granted non exclusive promotion rights within a specified geographical area. The agent is generally paid a monthly base commission between 10% and 30% of revenues received from Internet cafés in the allocated area. The commission percentage varies according to the amount of revenues.

We conduct a variety of marketing programs and online and offline events to target potential subscribers accessing the Internet from home. Our main marketing efforts include advertising on Web site portals and game magazines, conducting online promotional events, participating in trade shows and entering into promotional alliances with Internet service providers. We spent Won 17,263 million (US\$15,512 thousand) on advertising and promotions in 2018, compared with Won 12,525 million in 2017.

We frequently organize in game events, such as card exchange events for our users. We also host “fortress raid” events, which we believe encourage the development of virtual communities among our users and increase user interest in our games. We also host from time to time in game tournaments in which users can compete against each other either as a team or individually. In addition, we use in game events to introduce users to new features of our games. We organized 65 and 52 in game events for Ragnarok Online users in 2018 and 2017, respectively.

In most of our overseas markets, marketing activities are principally conducted by our licensees and typically consist of advertising on Web site game portals and online game magazines and through television commercials, as well as hosting online and offline promotional events. The licensees are responsible for the costs associated with such advertising and promotional activities. For example:

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In October 2018, X.D. Global Limited, which is in charge of marketing for Ragnarok M: Eternal Love in Southeast Asia, North America, South America, and Oceania, hosted the Thailand Game Show 2018 in Bangkok, Thailand. Thailand Game Show 2018 was attended by over 200,000 visitors and included a Ragnarok Online game event in which certain free items were offered after participants completed a mission. Visitors participated in various activities, took pictures with costume-play staff and celebrities and received information about the game launch.

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In November 2018, Electronics Extreme Ltd., our licensee that publishes Ragnarok Online in the Philippines, Singapore, Malaysia and Thailand, hosted the Extreme Games 2018 in Bangkok, Thailand. Extreme Games 2018 was attended by over 10,000 visitors and included the Ragnarok Online Thailand Championship tournament as a main event and a Ragnarok Online game event in which certain free items were offered after participants completed a mission.

In October 2018, Gravity Interactive, our subsidiary in the United States, hosted the Electronic Sports and Gaming Summit 2018 in Manila, Philippines, which was attended by about 24,000 people. Gravity Interactive set up its own booths to present Ragnarok M: Eternal Love to the public and held various events for visitors and provided information about the game launch.

In December 2018, Electronics Extreme Ltd., hosted Ragnafest 2018 in Manila, Philippines. Approximately 2,000 people visited the event. The event included an RO Cosplay competition and a digital art competition. During the event, the organizers held the Ragnarok Philippine Championships 2018 - Finals matches for the online Ragnarok Champion's League and All-Stars Wildcard teams.

In December 2018, Electronics Extreme Ltd. also hosted Comic Fiesta in Kuala Lumpur, Malaysia. Comic Fiesta is one of Southeast Asia's largest and longest-running animation, comics and games events. About 55,000 people visited and 328 registered new accounts for Ragnarok Online Malaysia/Singapore in two days.

Our licensees are selected in part on the basis of their marketing capabilities, including the size and scope of their distribution networks. Also, in more strategic markets where we anticipate considerable growth such as the United States or Taiwan or Thailand, we believe that it is important to enhance our own direct publishing network for game services.

## GAME SUPPORT AND CUSTOMER SERVICE

We are committed to providing superior customer service to our users directly and through our licensees. As of December 31, 2018, 36 employees were game masters, or persons who are in charge of testing, updating and providing server maintenance for our games, as well as dealing with customer complaints, 20 employees were members of our domestic customer service team and 16 employees were members of our overseas customer support team.

In Korea, we provide customer service for our online and mobile games through bulletin boards of the Web sites of our online and mobile games, call centers, email and facsimile and at our walk in customer service center. Our bulletin boards of the Web sites of our online and mobile games allow our customers to post questions to, and receive responses from, other users and our support staff. In our overseas markets, our licensees administer customer service through varying combinations of bulletin boards of the Web sites of our online and mobile games, call centers, email and facsimile, with assistance from time to time from our overseas customer support staff.

In addition to providing customer service to our users, our customer service staff also collect user comments with respect to our games and generate daily and weekly reports for our management and operations that summarize important issues raised by users as well as how such issues have been addressed.

## NETWORK AND TECHNOLOGY INFRASTRUCTURE

We have designed and assembled our game server network and information management system in Korea to allow centralized game management on a global basis. Our system network is designed to speedily accommodate a growing user base and demand for faster game performance. Our game server architecture runs multiple servers on a parallel basis to readily accommodate increased user traffic through deployment of connection to servers, which permits us to route users in the same country to servers with less user traffic. Each of these servers is linked to our information systems network to ensure rapid implementation of game upgrades and to facilitate game monitoring and supervision.

We maintain our server hardware in a single climate controlled facility at KT Mokdong Internet Computing Center at 233-5 Mokdongdong-ro, Yangcheon-gu, Seoul, Korea and our other system hardware in our offices in Seoul. As of

December 31, 2018, our server network for our game operations in Korea consisted of a total of 146 servers, including 63 physical servers and 83 physical servers through the server virtualization technology we have adopted since July 2011, which allows one physical server to be divided into multiple virtual servers, each of which functions individually as a complete and independent server.

In overseas markets, our local branches, overseas subsidiaries or licensees own or lease the servers necessary to establish the server network for our games and we assist them with the initial assembly and installation of operating game servers and optimization of their systems network for game operations in their respective markets. While the overseas system architectures are modeled on our system architecture in Korea, they are also tailored to meet the specific needs of each market. When we install and initialize a game in an overseas market, we generally dispatch network engineers and database technicians from Korea to assist with the assembly and operation of the system network and game servers. Following installation, we typically send two to five of our technicians and customer support staff to that market, for a few weeks in some cases and much longer periods in other cases, to assist with on site game operation and technical support. Our overseas subsidiaries and licensees are responsible for providing database and other game information backup.

Our game management software can program the game content to include localized features such as virtual map zones specific to each market. These features can be updated at the host country level in order to encourage development of a communal spirit among the users from the same country.

## COMPETITION

We compete primarily with other online and mobile game developers and distributors in each of our markets. In addition, we compete against providers of games on various platforms, such as console games, handheld games and arcade games. We compete primarily on the basis of the quality of the game experience offered by us to our users, which depends on a number of factors, including our ability to do the following:

- hire and retain creative personnel to develop games that appeal to our users;
- offer online and mobile game service that is stable and is not prone to server shutdowns, connection problems or other technical difficulties;
- provide timely and responsive customer service; and
- establish payment systems that are secure and efficient.

### Competition in the online game industry

Currently, the leading providers of online games globally, based on the number of peak concurrent users, include Korea-based companies such as NCSOFT Corporation, Krafton, Inc., Nexon Co., Ltd. and PUBG Corporation as well as foreign-based companies such as Riot Games, Inc., Activision Blizzard, Inc. and Electronic Arts Inc., according to data available from various public sources.

League of Legends of Riot Games, Inc., FIFA Online 3 of Electronic Arts Inc. and Overwatch of Activision Blizzard, Inc. are some of the most popular online games both in Korea and globally.

Our existing and any potential new competitors in the online games industry compete with us for talent, game player spending, time spent on game playing, marketing activities, quality of games and distribution network. As many of our competitors have significantly greater financial, marketing and game development resources than we have, we face intense competition in the online game industry. We expect competition will continue to be strong as new competitors enter the market and existing competitors allocate more resources to develop and market competing games, while the online game industry begins to consolidate into a small number of leading companies or groups of affiliated companies due to the high cost of game development, marketing and distribution networks, which is likely to drive unsuccessful online game providers to go out of business or be acquired by other successful game providers.

### Competition in the mobile game industry

Compared with the online or console game genres, the mobile game market has a relatively low barrier to entry because development of a mobile game requires relatively less time and personnel due to the limitations of the devices on which mobile games are played such as screen size and processing power. Moreover, development tools for mobile

games are easier to obtain and use, and open marketplaces, such as the Google Play Store and Apple's App Store, enable developers to easily distribute mobile games to a large global audience. Therefore, we expect the number of mobile game developers to continually increase in the future and competition to become more intense.

We compete with companies that specialize in developing and/or distributing mobile games including leading Korea-based publishers such as Nexon Co., Ltd., Netmarble Corp. and Pearl Abyss Corp. as well as foreign publishers such as Supercell Oy, King.com Limited, Epic Action LLC, Tencent Holdings Ltd., NetEase, Inc., XFLAG, Inc., LINE Corporation and GungHo Online Entertainment, our controlling shareholder.

PlayerUnknown's Battlegrounds, Clash of Clans and Fortnite are some of the most popular mobile games globally.

Our current or potential future competitors for mobile games also include package game companies that have successfully expanded their business into mobile game development such as Electronic Arts Inc. In addition, we believe more companies that previously were or currently are dedicated to developing online or console games will allocate more resources toward developing mobile games because the number of mobile game users is rapidly increasing as the penetration of mobile devices, such as smartphones and tablet computers, continues to deepen.

#### Competition from other game platforms

We also compete against PC and console based game developers that produce popular package games, such as Activision Blizzard, Inc. and Electronic Arts Inc., and game console manufacturers such as Microsoft Corporation, Sony Interactive Entertainment Inc. and Nintendo Co., Ltd., all of which also have their own console game development studios.

All the current game consoles enable users to play games with other users online by connecting their console to a network over the Internet. Likewise, a number of PC based game developers have also introduced online features to their PC packaged games, such as team games or user to user combat.

Competition in the gaming industry is expected to remain intense as established game companies with significant financial resources have various financial and strategic advantages over smaller game companies such as us. See ITEM 3.D. "RISK FACTORS—RISKS RELATING TO OUR BUSINESS—We operate in a highly competitive industry and compete against many large companies."

#### INSURANCE

We maintain medical and accident insurance for our employees to the extent required under Korean law, and we also maintain fire and general commercial insurance with respect to our facilities. We do not have any business liability or disruption insurance coverage for our operations in Korea. We maintain a directors' and officers' liability insurance policy covering certain potential liabilities of our directors and officers. See ITEM 3.D. "RISK FACTORS—RISKS RELATING TO OUR BUSINESS—We have limited business insurance coverage, and business interruption could have a material adverse effect on our business."

#### INTELLECTUAL PROPERTY

Our intellectual property is an essential element of our business. We rely on intellectual property such as copyrights, trademarks and trade secrets, as well as non competition, confidentiality and license agreements with our employees, suppliers, licensees, business partners and others to protect our intellectual property rights. Our employees are generally required to sign agreements acknowledging that all inventions, trade secrets, works of authorship, developments and other processes generated by them on our behalf are our property and assigning to us any ownership rights that they may claim in those works. With respect to copyrights and computer program rights created by our employees within their employment scope and which are made public bearing our name, we are not required to pay any additional compensation to our employees.

In developing Ragnarok Online, we obtained an exclusive license from Mr. Myoung Jin Lee to use the storyline and characters from his cartoon titled Ragnarok for the production of games, animation and character merchandising. See

ITEM 4.B. “BUSINESS OVERVIEW—OUR PRODUCTS—Online games—Ragnarok Online.”

We are the registered owner of 21 registered software copyrights to 14 games: Ragnarok Online, Ragnarok Online II, R.O.S.E. Online, Requiem, Ragnarok Violet, Ragnarok Angel Poring, Ragnarok Online—Uprising: Valkyrie, Arcturus, Pucca Racing, W Baseball, Dragonica, Dragon Saga, Ragnarok Online Zero and Ragnarok Spear of Odin, each of which has been registered with the Korea Copyright Commission. We no longer commercially offer Arcturus, a PC based, stand alone game, nor Pucca Racing, and have decided to cease commercialization of W Baseball, Ragnarok Violet, Ragnarok Angel Poring and R.O.S.E. Online. As of December 31, 2018, we owned 117 registered domain names, including our official Web

site and domain names registered in connection with each of the games we offer. We had 538 registered discrete trademarks at patent and trademark offices in 52 countries as of December 31, 2018. We had two design patents and one analogous design patent, which is a variation of one of the design patents, registered with the Korea Intellectual Property Office, registered copyrights covering 13 game characters, and six online game business model patents, in each case as of December 31, 2018.

## SEASONALITY

Usage of our online and mobile games has typically increased slightly around the Lunar New Year holiday season and other holidays, in particular during winter and summer school holidays.

## LAWS AND REGULATIONS

We are subject to many laws and regulations in the different countries in which we operate. See ITEM 3.D. “RISK FACTORS—RISKS RELATING TO OUR REGULATORY ENVIRONMENT.” A general overview of the material laws and regulations that apply to our business is provided below for the countries from which we derive a significant portion of our revenues.

### Korea

The Korean game industry and online and mobile game companies operating in Korea are subject to the following laws and regulations:

#### The Personal Information Protection Act

The Personal Information Protection Act was enacted on March 29, 2011 and went into effect on September 30, 2011. The scope of the Personal Information Protection Act covers anyone dealing with personal information in the private and public sectors.

If a person’s personal information is collected or used, or provided to a third person, such person’s consent should be obtained, and if personal information is no longer necessary upon achievement of the purpose of the collection and use of personal information, such information should be immediately destroyed.

Any transaction requiring identifiers granted by law for identification purposes, such as the resident registration number, is generally prohibited, and exceptions are recognized on a restrictive basis only if consent is obtained or if required by law. In addition, any person dealing with personal information as determined pursuant to the Presidential Decree, for instance, such as signing up for a Web site, should provide methods other than using the resident registration number.

In the event of a personal information leak, the processor of personal information should promptly notify the affected person after discovering such incident. If the volume of the leak of personal information exceeds a certain number, the processor of personal information should report the incident to the authorities and take necessary measures to minimize damages.

In addition, the same legislation grants to each individual the right to request perusal, the right to request correction or deletion, and the right to request suspension of process with respect to one’s personal information, and also provides the methods to exercise such rights.

To promote prompt and fair settlement of disputes concerning personal information, the same legislation also provides that a Personal Information Dispute Mediation Committee, or “PIDMC,” should be established and the PIDMC’s decision, if accepted by the disputing parties, should have the same legal effect as settlement by trial. In consideration

of the fact that most identity theft cases are large in scale and small in the amount of monetary damages, the legislation adopts a collective dispute settlement system. A class action system for personal information has been adopted, but in order to prevent frivolous class action suits, litigants are required to go through the collective dispute settlement system prior to bringing a class action and cases are limited to those seeking suspension or injunctive relief.

## The Act on Promotion of Information and Communications Network Utilization and Information Protection, Etc., or Information Protection Act

Under the Information Protection Act, we are permitted to gather personal information relating to our subscribers within the scope of their consent. We are, however, generally prohibited from using personal information or providing it to third parties beyond the purposes disclosed in our subscriber agreements. Disclosure of personal information without consent from a subscriber is permitted only if it is necessary for the settlement of information and communication service charges or is expressly permitted by this or any other statute.

We are required to indemnify users for damages occurring as a result of our violation of the foregoing restrictions, unless we can prove the absence of willful misconduct or negligence on our part.

Penalty surcharges are imposed on any telecommunications enterprises violating the regulation on the protection of personal information to recover any unfair profits gained by such enterprises, and some conducts, such as collection of personal information of users without their consent, are the subject of criminal punishment. Any telecommunications enterprises violating its obligation to protect personal information by collecting, using, disclosing such information without consent, and not complying with protective measures, may be imposed with surcharges not exceeding 3% of the sales relevant to the conduct of violation in consideration of the details, degree, period, the number of times, and the scale of gained profits.

Following the continued occurrence of personal information leakage incidents on information and communication networks in the financial sector, the Information Protection Act was amended on May 28, 2014 (enforced on November 29, 2014) to strengthen personal information protection measures and supplement remedial methods for users by strengthening punishment on information and communication network providers and introducing a statutory damage compensation system. According to the amended Information Promotion Act, a user may claim for statutory damage compensation up to Won 3 million in case of loss, theft or leakage of his/her personal information under management by the information and communication network provider.

Previously, the Information Protection Act was silent on mobile application developers' access to personal information of application users, and such application users typically consented to such access as they would otherwise not be permitted to use the mobile application services. However, the Information Protection Act was amended on March 22, 2016 (enforced on September 23, 2016) to require mobile application developers to distinguish between information that is critical to provision of material components of the application services and information that is not critical, and clearly explain to each user why access to such critical information is necessary when the developers request such user to provide consent for such developer's access to the data stored on such user's smart phone. Moreover, a mobile application developer may not refuse to provide services based on a user's refusal to provide access to his or her information which is not critical to provision of the application services.

## The Act on Consumer Protection for Transactions through Electronic Commerce

Under this Act, we are required to take necessary measures to maintain the security of consumer information related to our electronic settlement services. We are also required to notify consumers when electronic payments are made and to indemnify consumers for damages resulting from misappropriation of consumer information by third parties.

## Copyright Act

The Copyright Act grants certain protections to general works and computer program works. In connection with computer program works, the Copyright Act provides for restrictions on software copyrights, reverse analysis of computer programs, and the establishment of the exclusive right to issue computer programs as a special case apart from other kinds of works.

The Copyright Act has the relevant provisions necessary for implementing the Korea US Free Trade Agreement, such as recognition of temporary storage as copying, introduction of a system of fair use of copyrighted materials, prohibition of acts of infringement on the rights of copyright holders including the distribution of forged labels, and the introduction of statutory damages in accordance with the agreements in the Korea US Free Trade Agreement.

In order to protect the rights of copyright holders in a digital environment, the Copyright Act specifies that temporary storage falls under the scope of “copying” but allows temporary storage to the extent it is deemed necessary for smooth and efficient information processing. Under the Copyright Act, an online service provider will be deemed not liable for copyright infringement: (i) if the online service provider has adopted and reasonably implemented a policy of terminating the account of a person who infringed copyrights or (ii) if the online service provider has accepted and not interfered with a right holder’s use of standard technical measures for identifying and protecting copyrighted materials.

## The Act on Promotion of the Game Industry, or Game Act

Under the Game Act, which became effective on April 20, 2007, online games are classified into four categories: “suitable for users of all ages,” “suitable for users 12 years of age or older,” “suitable for users 15 years of age or older” and “suitable for users 18 years of age or older.” The 15 years of age or older category was added between the 12 years of age and 18 years of age categories to increase ratings flexibility. Ragnarok Online has been classified as “suitable for users 12 years of age or older.” The Game Act includes the definition of the term “speculative game.” A speculative game refers to a game that permits betting and offers monetary loss or profit that is determined by chance. Elements that may cause a game to be considered a speculative game include the existence of game money used as a means for betting or purchasing game items (items used within the game for progression in the game) that become the subject of exchange with real money. The Supreme Court Decision No. 2009Do12117 rendered on February 25, 2010 provided that a ‘speculative game’ under the Game Act, should be carried out in accordance with the contents and method prescribed under Article 2,(1-2) of the Game Act, and further, that the term refers to a gaming device or tool which directly provides money, prize or other financial profit or incurs loss on the game user via a payment tool installed on the gaming device or tool depending on the results of the game. Although the Game Act’s definition of speculative games and the Supreme Court decision are intended to provide clarity for the determination of whether a game is deemed speculative or not, because our games involve transactions with game items, we have had to take measures to ensure that we are in compliance with the new rules. Such measures include distributing a game after a rating review is conducted by the Game Rating and Administration Committee, or a self rating review is conducted in respect of such game in accordance with the Article 21-2 of the Game Act.

As described above, the Game Act requires a prior rating to be allocated to any game before its distribution in Korea in order to protect young users from violent and otherwise harmful content and to control the distribution of speculative games. Previously, such rating was allocated solely by government agencies in Korea. However, concerns were raised over potential violation of freedom of speech resulting from the requirement that all games must be rated by government agencies. As a result, the Game Act was amended in July 2011 and again in May 2013 to allow a private agency to conduct a rating review on games and permit a self-rating in cases where a game distributor cannot receive a prior rating from the Game Rating and Administration Committee due to special circumstances in its production and distribution channels. In January 2017, the Game Act was amended to allow governmental authorities to designate a “Self Rating Review Company” which would be entitled to conduct a self rating review on all of its games with the exception of adult-only games and arcade games. The governmental authorities have yet to designate any game company in Korea as such a Self Rating Review Company.

In addition, the amendment to the Game Act in January 2017 allowed allocation of game rating only based on game contents. Prior to such amendment, a game rating was required to be conducted in respect of each gaming device or platform regardless of whether different devices and/or platforms are used for the same game contents. Such requirement, however, came under criticism with emergence of a number of new platforms for games such as Internet protocol television and virtual reality devices and development of new games which may be played using multiple platforms at the same time, (such as mobile and online games). The amendment to the Game Act in January 2017 addressed such criticism.

A game provider has to report any modification in the content of a game to the Game Rating and Administration Committee or a Self Rating Review Company, which may require the game to be reclassified depending on the scope of the modification.

If the Game Rating and Administration Committee determines that the game is speculative, it can refuse to classify such game, in which case the game will be prohibited. According to Article 1-2 of the Enforcement Decree of the Game Act, any games in which money or items of value are collected from a multiple number of persons and profits or losses are allocated based on winnings or losses determined by chance fall under speculative games. According to Article 16-2 of the Enforcement Decree of the Game Act, so long as certain guidelines are followed, a provision of a gift equivalent to a customer price of Won 5,000 or less, with respect to games that are classified as “suitable for users

of all ages,” is not deemed to be an act that encourages gambling.

Under the Game Act, the Minister of Culture, Sports and Tourism may order information and communication service providers to refuse, stop, or restrict the offering of games if such games are unrated, contents are different from those submitted for rating, were denied rating as speculative games, or were manufactured or distributed by a person not registered for operation of manufacturing or distributing games for profit making. The Game Rating and Administration Committee undertakes examination of the information and communications service providers and provides recommendation of correction to the providers as necessary.

In addition, under the Game Act, online game companies are required to comply with the following to prevent players' excessive preoccupation with and addiction to games: (i) verification of registered game users, including through verification of their real names, ages and identities, (ii) obtaining a parent/guardian's consent for minors, (iii) restriction on the playing of games and limits on access hours, among others, when requested by minors or their parent/guardian, (iv) publishing of basic information such as the nature of the game being offered, its rating and in-game purchase policy, and notification to minors and their parents/guardians with respect to game use information such as access hours and payment information, (v) publishing of a warning statement to prevent excessive use of the game, (vi) providing of measures to prevent excessive use of the game including placing the access hour indicator on the game play screen (collectively, the "Prevention Measures"). In accordance with item (iii), upon request from minors or their parents/guardians, an online game company is required to implement the Selective Shut-down System. The Minister of the Ministry of Culture, Sports and Tourism may issue corrective orders if the Prevention Measures adopted are deemed inadequate, and if such corrective orders have not been implemented, imprisonment not exceeding two years or a fine not exceeding Won 20 million may be imposed.

Such restrictions to prevent excessive preoccupation are currently only applicable to online personal computer games. After May 19, 2019, the Ministry of Gender Equality and Family is expected to review the scope of games to be subject to such restrictions, and it is possible that mobile games for smartphones and tablets may become included in the scope of such regulation.

#### The Juvenile Protection Act

The Juvenile Protection Act prescribes the establishment of the Juvenile Protection Commission under the authority of the Minister of the Ministry of Health and Welfare in Korea, formerly known as the Ministry for Health, Welfare and Family Affairs, or the "MIHWAF," which has the authority to designate the types of media harmful to juveniles. Under the Juvenile Protection Act, any person who intends to sell, lend or distribute media materials harmful to minors or provides them for viewing or utilization is required to confirm the age of the intended user, and shall not sell, rent or distribute such materials, or provide them for viewing or utilization, to minors. A person in violation may be punished by imprisonment for a maximum of three years or by a fine not exceeding Won 20 million.

The MIHWAF issued a public notice announcing that "Web sites for trading items" are considered "harmful mass media" to minors based on the findings of Juvenile Protection Commission that such Web sites for trading online game items are likely to encourage gambling and speculation and negatively influence juveniles. In the public notice, the MIHWAF prohibited any person under the age of 19 from visiting Web sites for trading online game items.

A Web site for trading items is a Web site which offers the services of a brokerage or agency for the trading of tangible or intangible things gained from online games as prescribed in the Game Act. The Supreme Court held in a case regarding Item Bay, one of the leading Web sites in Korea for trading online game items, that "Trading items on Item Bay falls under speculative activity as it is hard for game users to resist the temptation of cash trades through which they may easily gain items, which will cause users to be attracted to the cash convertibility of items rather than the game itself." While we offer virtual in game items for sale to our users on the game Web sites that we operate in Korea, we do not broker the trade of such game items or any other tangible or intangible acquisitions obtained by using online games among our users, and currently do not fall under the category of "Web site for trading items."

Under the Juvenile Protection Act, online game providers may not provide online games to minors under the age of 16 late at night (specifically, from midnight until 6:00 a.m.) and any provider violating the provision is subject to imprisonment for no more than 2 years and a penalty not exceeding Won 20 million. Currently, such restriction is only applicable to online personal computer games. However, after May 19, 2019, the Ministry of Gender Equality and Family is expected to review the scope of games to be subject to such restrictions, and mobile games for smartphones and tablets may become included in the scope of such regulations.

The Korean Civil Code and the Act on the Establishment and Management of the Korea Communications Commission

Pursuant to the Korean Civil Code, contracts entered into with minors, who were persons under 20 years of age, without parental consent under the Korean Civil Code prior to its amendment, may be invalidated. The definition of minors was changed to persons under 19 years of age in the amendment to the Korean Civil Code on March 7, 2011, which became effective on July 1, 2013. Under the Act on the Establishment and Management of the Korea Communications Commission, the Korea Communications Commission (“KCC”) was established to oversee services relating to broadcasting and communications and also to deliberate and resolve matters concerning the protection of users’ information and communications. As a result, telecommunications service contracts and online game user agreements are required to specifically set forth procedures for rescinding service contracts, which may be entered into by persons under 19 years of age without parental consent.

In November 2003, the KCC issued an order addressed to 15 major online game companies in Korea, including us, to regulate certain business practices relating to the settlement of service charges involving minors. The KCC raised concerns about the ability of minors to subscribe to online game services without parental consent by settling charges payable to online game companies through settlement systems operated by fixed line or broadband service providers. The order required online game companies to implement more specific and effective procedures to ensure, where relevant, that parental consent has been specifically obtained.

Although only a small number of our current subscribers were using the settlement options mentioned in the KCC order, we have enhanced our age verification and parental consent procedures for players using the relevant settlement options.

In April 2014, to help prevent damages from payments made by minors or unauthorized persons, the KCC required mobile application market providers to strengthen the security apparatus in a charged mobile application as follows: (i) to require setting up a password and entering it before the purchase of a charged mobile application, (ii) to standardize the phrases that indicate the application is a charged one and requires purchase and (iii) to provide certain major notices including the refund policies on the first page of the purchasing process. Moreover, in July 2017, the KCC implemented an alert system regarding minors' usage of paid content within mobile applications, under which the mobile phone account holder and the minor's parents or guardian will be notified upon the purchased amount exceeding a certain threshold.

#### The Telecommunications Business Act

Under the Telecommunications Business Act, a person who intends to run a value added telecommunications business must report to the Ministry of Science, ICT and Future Planning, or the "MSIP", which has the authority to accept and monitor such reports. We are classified as a value added telecommunications service provider such that we are required to prepare and submit statistical reports regarding, among others, the current status of facilities, subscription records and current status of users to the MSIP upon its request. The MSIP is responsible for compiling information and formulating telecommunications policies under this Telecommunications Business Act. In addition, we are required to report any transfer, takeover, suspension or closing of our business activities to the MSIP, which may cancel our registration or order us to suspend our business for a period of up to one year if we fail to comply with its rules and regulations.

#### Taiwan

There are currently no laws or regulations that specifically target online and mobile gaming businesses. Some laws and regulations that are relevant to or that may affect the online and mobile gaming businesses are described below.

#### Protection of Personal Data

A non-governmental entity collecting, processing or using personal data is subject to the Personal Data Protection Act, or the "PDPA", as amended on December 30, 2015. Any information that may be used to directly or indirectly identify a natural person is considered "personal data", including the name of the data subject, date of birth, identity card number, passport number, characteristics, fingerprints, marital status, family, education, occupation, medical record, medical treatment, genetic information, sexual life, health examination, criminal record, contact information, financial conditions, and social activities.

When an entity collects personal data, it must inform the data subject of matters including the purpose of collection, how the data will be used, the rights of the data subject to review, duplicate, correct the personal data, and the right to request the entity to cease using the data. When such entity processes or uses any personal data collected by any third parties, it must further inform the data subject about the source of such data in addition to the requirements mentioned above. In principle, prior consent from the data subject is required in order to process and/or use his/her personal data.

However, this requirement is exempted if the use relates to matters of public interest or if the personal data is available from the public domain and the interest to be protected is more important than the privacy of the data subject.

Furthermore, the competent authorities may impose restrictions on any overseas transmission of personal data if (1) such transmission is related to the interests of the nation, (2) such restriction is imposed pursuant to an international treaty or agreement, (3) the receiving country has no laws or regulations that are sufficient to protect personal data, or (4) such transmission is made through a third nation/region for the purpose of avoiding the regulations of the PDPA.

Violation of the PDPA may lead to a criminal sentence if such violation is committed with the intent to gain profits, and may also lead to damage claims, whether with such intent to gain profits or not, even if no actual damage can be proven. The competent authorities may request an entity to delete the data and prohibit the entity from further collecting, processing or using the data if the entity is perceived to have violated the PDPA. A victim may authorize certain public-interest associations to file a lawsuit against the violator on his/her behalf.

## Regulations on Copyrights

Under the Copyright Act, as amended on November 30, 2016, online and mobile games may be protected both as “computer programs” and “audiovisual works.” The period of copyright protection extends to fifty years after the death of the copyright holder. For a copyright holder other than a natural person, the period of copyright protection is fifty years after the publication of the work.

Any unauthorized reproduction, public transmission, distribution, adaptation or public display of a protected work, removal of any electronic rights management information for the purpose of identification of copyright or copyright holder, or removal of any technological protection measures of a work, either willfully or negligently, may constitute an infringement of the copyright of the holder and may lead to imposition of fine(s) and/or imprisonment. Taiwan courts remain divided regarding whether the operation of an unauthorized server for an online game violates the Copyright Act. In 2017, the Intellectual Property Court of Taiwan ruled that the operator of an unauthorized server of an online game did not violate the Copyright Act by altering the log-in IP address of the online game. On the other hand, the same court ruled that reproducing copyrighted programs and artworks violated the Copyright Act. Any entity that sets up an unauthorized server for our online or mobile games may therefore be deemed as infringing copyrights and violating the relevant laws of Taiwan.

Use of a protected work will not constitute an infringement if it constitutes certain reasonable use based on statutory exemptions, such as use for educational, research, or news reporting purposes. An Internet service provider might not be held liable for copyright infringement by its users if it has adopted certain preventive measures for possible copyright infringements.

## Regulations on Welfare and Rights of Children and Youths

Online game and mobile game operators should comply with a five-category game rating system, established under the Protection of Children and Youths Welfare and Rights Act and the Regulations of Game Software Rating Management, as amended on January 2, 2019 and April 20, 2018, respectively. The categories include: “Restricted”, “Parental Guidance 15”, or “PG-15”, “Parental Guidance 12”, or “PG-12”, “Protected” and “General Public.” The ratings are registered with the Digital Game Rating Committee, or the “DGRC”, and such registration should be filed by the entity selling the game software or operating the game with license, or by the other entity supplying the game to users, prior to the launch of the game for public review and reference. Entities selling, operating with license, renting, disseminating, or displaying the game software or providing software for downloads should mark such classification on the packaging of the game software or next to the link to such game software.

Failure to comply with the rating system and the related marketing requirements by persons selling, operating with license, renting, disseminating, or displaying the game software or providing software for downloads may lead to imposition of fine and suspension of the online or mobile game.

## Regulations on Consumer Protection

A transaction between a business operator and a consumer is governed by the Consumer Protection Act, or the “CPA”, as amended on June 17, 2015. Any transaction between a business operator and a consumer, if conducted through the Internet such that the customer does not have the opportunity to examine the goods or the services prior to the transaction, will be considered a “distant sale.” A consumer of a distant sale may cancel the transaction without cause within seven days of receiving the goods or services and shall not be subject to any cancellation fee. If a business operator fails to inform the customer of his/her right to cancel the transaction within seven days, such seven-day period shall be calculated from when the business operator later informs the customer of his/her right. A customer may not cancel the transaction after four months since receiving the goods or services. Any agreement that waives such rights of a customer is void.



An online game service agreement between a game operator and a consumer, if reached through standard contract terms drafted by the game operator and without negotiations between the parties, such as the standard terms and conditions between us and our Taiwan users, is subject to the Regulations of Mandatory Provisions to be Included in and Provisions Prohibited from Standard Form Contract for Internet Games Services effective since January 8, 2019. For example, any term in a standard contract for online games that waives a game operator's responsibility under the CPA, precludes consumers' right to terminate the agreement at will, or allows a game operator to amend the agreement unilaterally, will be deemed void. The mandatory provisions for a standard contract for an online game include, among others, that (1) a consumer may terminate the agreement without cause within seven days of executing the agreement, (2) a consumer may request for full refund of any paid but unused points/value, (3) a business operator should publish an announcement on the home page of game Web site, the game log-in page or the purchase page thirty days prior to any service fee rate adjustment scheduled to come into effect, and (4) if a business operator closes its business, it should, no less than thirty days prior to closure, publish an announcement on the home page of the game Web site, the game log-in page or the purchase page, and notify the consumers at the consumers' registered contact information if previously provided. These mandatory provisions form part of the online game agreement and are effective even if they are not specified in the executed standard contract.

Further, according to the CPA, a business operator that engages in the design, production, and/or manufacture of goods, and/or the provision of services, must ensure that the goods or services produced or provided meet the reasonably expected safety requirements based on the prevailing technology or professional standards at the time of manufacture. The liability of a business operator to compensate for consumers' injury cannot be restricted or released in advance. In addition, the CPA imposes strict liability on business operators for loss or damage caused to consumers regardless of whether the product or service has defects or not. A business operator in violation of the CPA thereby causing injury to a consumer or third party is jointly and severally liable; provided, however, that if the business operator can demonstrate that the injury suffered was not caused by negligence on its part, the court may reduce the amount of damages. The CPA also requires that business operators warn consumers of any potential danger that may be caused by their products.

According to the CPA, consumer disputes may be mediated by a local consumer mediation committee, or be brought to the court through class actions by consumer protection organizations on behalf of the consumers.

#### Thailand

##### Copyright Act B.E. 2537 (1994)

Under the Copyright Act, online and mobile games may be protected both as "literary work", which includes computer programs, or "audiovisual works" or "cinematographic works". As a member of the Berne Convention for Protection of Literary and Artistic Works, copyright works created in a signatory country will be protected under Thai law and given the same protection as those copyrights works created by Thai nationals. The period of copyright protection extends to fifty years after the death of the copyright holder. For a copyright holder other than a natural person, the period of copyright protection is fifty years after the publication of the work. Unauthorized reproduction, public transmission, distribution, adaptation or public display of a protected work may constitute an infringement of the copyright of the holder and may lead to both fines and imprisonment.

Intellectual property-related matters in Thailand are overseen by the Department of Intellectual Property, under the auspices of the Ministry of Commerce. Additionally, IP-related lawsuits are submitted to a specialized court: the Court of Intellectual Property and International Trade.

##### Foreign Business Operations Act B.E. 2542 (1999)

The Foreign Business Operations Act was enacted in 1999 in an effort to restrict foreign participation in a wide range of business, commercial, and industrial activities in Thailand. Specifically, the Foreign Business Operations Act aims

to protect Thai businesses in certain industries by limiting or prohibiting foreigners from operating businesses in those industries without specific authorization from the government. Restricted businesses for foreigners are divided into three (3) “Lists”, and List 3 includes businesses in which Thai nationals are not yet ready to compete with foreigners, including a broad subsection (21) of “Other Services”. Due to its broad scope, almost all business activities could fit into this category. Foreigners such as our Company can engage in businesses under List 3 only when a “Foreign Business License” is obtained from the Ministry of Commerce.

#### Personal Data Protection Act

On February 28, 2019, the National Legislative Assembly approved the final draft of the Personal Data Protection Act (“Thailand PDPA”). It is expected that the Thailand PDPA, in its current form, will be the final draft before its

promulgation, which is expected to happen during the course of 2019 – 2020. Largely modeled after the GDPR, the draft Thailand PDPA contains many similar provisions thereto.

## Philippines

### Data Privacy Act

The Data Privacy Act of 2012 establishes the Philippines' data privacy framework. It recognizes an individual's rights to personal and sensitive information and fines the unlawful processing of such information and the violation of rights of a data subject. Individuals and legal entities that process personal information are considered "personal information controllers" and are subject to the mandatory requirements of the law.

### Copyright

Under the Intellectual Property Code of the Philippines, online and mobile games may be protected as "computer programs". There are two types of rights under copyright, namely (1) economic rights which enable the creator to obtain remuneration from the exploitation of works, and (2) moral rights, which make it possible for the owner to undertake measures to protect the connection between it and the work. The term of protection under the law is during the life of the author and for fifty years after his death.

## Child and Youth Welfare Code

The Child and Youth Welfare Code provides that every child has the right to full opportunities for safe and wholesome recreation and activities, individual as well as social, for the wholesome use of his leisure hours. Further, the law provides that every child has the right to protection against exploitation, improper influences, hazards, and other conditions or circumstances prejudicial to the child's physical, mental, emotional, social and moral development. Should an online game be determined to promote ideals inimical to the physical, mental, emotional, social and moral development of a child, then the same may be considered a violation of the law and be the basis for a complaint.

## Japan

Japan does not currently have any national government regulations targeted specifically at the online game or mobile game industry. Some regulations that are relevant to or that may affect the online game and mobile game industries are described below.

### Protection of Personal Information

Businesses in Japan are subject to certain statutory requirements with respect to personal information acquired during the ordinary course of business. Pursuant to these statutory requirements, businesses must set up appropriate procedures to protect personal information from use for any purpose other than the intended purpose.

### Regulations on Sound Upbringing of Minors

In Japan, Internet and game software content is generally regulated at the local, rather than the national, level. Many local governments have ordinances regarding the sound upbringing of minors, which empower competent authorities

to designate game software as detrimental to the sound upbringing of minors and prohibit the sale or distribution to minors of such designated game software. In addition, the Computer Entertainment Rating Organization, or “CERO,” a nonprofit organization, offers rating services for home use games, including online and mobile games. Game developers may request a rating for their game software from CERO, which will then review such software and assign one of the following five ratings: “suitable for users of all ages,” “suitable for users 12 years old or older,” “suitable for users 15 years old or older,” “suitable for users 17 years old or older,” and “suitable only for users 18 years old or older.” Ratings are based on, among other factors, the degree of sex, violence and anti social expression in the game software content. Once a rating is assigned, the relevant game software must prominently display such rating.

## United States

### Protection of Personal Information

Most states have enacted legislation regarding the protection of personal information collected, processed, maintained or used in electronic form, as well as specific notification procedures in the event that such information is accessed or acquired by unauthorized individuals. Under these laws, among other things, businesses are required to implement and maintain reasonable security measures, such as encryption, designed to protect the computerized personal information of its customers or users from unauthorized access, disclosure or use. The definition of “personal information” varies by state, but may include social security numbers, credit card or bank account numbers and access codes, and a user name or email address in connection with a password or security question that would permit access to an online account. In the event that a business suffers a security breach, these laws may require the business to provide notice of the incident. If notification is required, the business must notify each individual whose data was included in the incident and in some circumstances the State Attorney General, other state agencies, and consumer reporting bureaus. In addition to notifications required under state data breach laws, some other federal or state laws or guidelines may require notifications to other government agencies for incidents involving specific categories of information including but not limited to personal financial data, health data, and tax data. Notice may not be required in some states where an investigation demonstrates there is no risk of harm. In recent years, many states have adopted amendments to these laws, expanding the definition of “personal information” requiring notification, shortening the timing for required notification and imposing new regulator and consumer reporting bureau notification obligations in certain circumstances. If such personal information is accessed by unauthorized individuals as a result of the business’ failure to use reasonable measures to protect the information, the business may be subject to litigation risks from impacted customers for harm to them potentially resulting in statutory fines or penalties, as well as civil and even potential criminal prosecution by government authorities. A business that suffers a breach may also experience harm to its reputation and business.

### Privacy Policy Requirements

Online privacy policies are generally only required for Web sites that collect information from children or that collect certain information from the residents of certain states, such as California, Connecticut and Delaware. For other jurisdictions and types of information, online privacy policies are considered a good practice, but not necessarily required. Any company that does publish a privacy policy is obligated, however, to comply with its terms or risk being found to have engaged in a deceptive practice. The FTC and some state laws require that a posted privacy policy conspicuously and accurately disclose their user data collection and disclosure practices, including informing a business’ customers and users of the categories of personal information that are collected, describing how that personal information is used and shared with third parties, and explaining how users may change or update such information and opt out of its collection and use. In addition to possible statutory fines or penalties, an operator may be directly liable to its customer or users if it fails to comply with its posted privacy policy, if such noncompliance harms the users. Moreover, the FTC has initiated numerous investigations and imposed significant civil penalties in several cases involving alleged failures by companies to comply with the representations made in their online privacy policies and/or adequately disclose the companies’ actual practices in such policies. Settlement agreements with the FTC frequently include twenty years of privacy audits and mandated revisions to the business’ privacy practices, and can include civil penalties. In general, privacy policies are also expected in the mobile application context as well, including the collection and use of mobile geolocation and device identifier data. Because of the sensitive nature of data that can be collected through mobile applications, mobile application developers should post a privacy policy accessible through the application or the application store, provide just in time disclosures, obtain affirmative express consent when collecting sensitive information such as children’s data, and use enhanced measures or special notices to alert users to unexpected data use cases to follow best recommended practices from the FTC and State Attorneys General. The FTC has increased its scrutiny of mobile platforms and mobile applications and brought several consent decrees against application developers in recent years relating to misleading privacy disclosures, the over collection of data from a user’s mobile device, and the collection of information from children under the age of 13 in violation of

COPPA. The failure to properly disclose and obtain valid consent to data collection, use, and sharing may also require a business to delete all information that was improperly collected and used.

#### Liability Arising from New and Evolving Privacy and Data Security Laws and Regulations

Existing privacy and data security-related laws and regulations in the United States are evolving and are subject to potentially differing interpretations, and various U.S. federal and state legislative and regulatory bodies may expand or enact new privacy and data security-related laws and regulations. For example, the state of California enacted the California Consumer Privacy Act of 2018 (the “CCPA”), which will come into effect on January 1, 2020, and which also introduces and

enhances consumer rights for California residents and disclosure obligations relating to how personal information (which is defined broadly under the CCPA) is processed. In certain circumstances, the CCPA provides a California resident the right to direct a business not to sell his or her personal information or to delete his or personal information, as well as the right to access his or her personal information or to request certain details about how a business processes his or her personal information. The CCPA also provides children's personal information heightened protection by prohibiting businesses from selling the personal information of a California resident whom the business has actual knowledge is less than 16 years of age unless the business receives affirmative authorization from the resident or his or her parent or guardian, as appropriate. Amendments and clarifying regulations are anticipated prior to regulatory enforcement of the CCPA, and it remains unclear what, if any, modifications will be made to the CCPA or how it will be interpreted. Other state legislature and the U.S. Congress are also considering comprehensive privacy and data security laws and our operations may be further impacted if other states in the U.S. adopt similar laws or if a comprehensive federal privacy and data security law is enacted.

#### Game Ratings and Attempts to Regulate Access to Children

Most video game software publishers comply with the standardized rating system established by the Entertainment Software Rating Board, or the "ESRB," a non profit, self regulatory body established in 1994 by the Entertainment Software Association, or the "ESA." The ESRB rates video games submitted by video game publishers; the ratings include both a symbol for age appropriateness (e.g., "E" for Everyone or "M" for Mature) and a content descriptor (e.g., "Blood and Gore" or "Intense Violence"). The ESRB specifically excludes any online interactions from the rating, as the ESRB is unable to review content, such as chat, text, audio and video generated by other users in an online environment. In 2015, the ESRB, in partnership with the International Age Rating Coalition, extended the ESRB rating system to games accessible via mobile and digital marketplaces.

By submitting a game to the ESRB and using an ESRB rating, a video game publisher must agree to adhere to advertising and packaging guidelines for the rated game, such as using appropriate advertising content and not targeting any advertisement for a game rated "Teen," "Mature" or "Adults only" to consumers for whom the product is not rated as appropriate. The ESRB's Advertising Review Council has been granted the oversight and enforcement authority for compliance with the advertising guidelines. The ESRB may enforce sanctions against game producers for failing to label their product properly, including fines up to US\$1 million, and/or product recall. Games that are digitally available via download may be taken down for incomplete content disclosures. Although submitting a game to the ESRB is voluntary, some retailers may be reluctant to sell games without an ESRB rating.

The United States Federal Trade Commission, or the "FTC," may also take action with respect to improper ratings pursuant to its broad authority to prohibit fraudulent, deceptive, or unfair business practices.

The ESRB has rated our games as follows: Requiem is rated "Mature," Ragnarok Online is rated "Teen," and R.O.S.E. Online and Dragon Saga are rated "Everyone 10+." Ragnarok Clicker has not yet been rated.

A number of bills have been introduced in Congress to specifically regulate the sale of video games with violent content to minors, but currently no such federal laws are in effect. Several states and cities have enacted or are considering laws that would regulate game industry content and marketing, including the rental or sale of games with violent content by or to minors. Other states have enacted laws that require the posting of signs providing information about ESRB ratings. Lawmakers may pass additional laws and regulations restricting the sale of violent video games to minors, which, if enacted, could adversely affect our sales and results of operations.

#### Online Collection of Information from Children

The Children's Online Privacy Protection Act of 1998 ("COPPA") governs the online collection of personal information from children under the age of 13. Under COPPA, a Web site or online service, including Internet-enabled gaming platform, that knowingly collects information from children under 13 years old, or that in whole or in part is directed

to children under 13 years old, must obtain verifiable parental consent before collecting, using and/or disclosing personal information from any child (including, but not limited to, first and last name, home address, email address, telephone number, Social Security number, image or likeness, mobile device identifier or other persistent identifier that would permit the physical or online contacting of a specific individual).

Web sites or online services subject to COPPA must therefore obtain verifiable parental consent before engaging in online advertising that involves tracking of children under the age of 13. The Web site operator must also post and obtain parental consent to a clear online privacy policy that provides notice of what information is collected from children, how the information is used, and a list of third parties with which the operator may share or sell the child's information. The privacy

policy must give parents the choice to determine whether the child's information can be shared with third parties, provide parents access to the child's information, and offer parents the opportunity to delete any collected information. If the company permits third party advertising networks to use persistent identifiers to serve advertisements, those advertising networks must be informed that the site or service is directed towards children and the company must ensure that parental consent covers such collection, sharing, and use. Moreover, the operator must establish and maintain reasonable procedures to protect the confidentiality, security and integrity of any personal information collected from children under 13 years of age. COPPA also prohibits conditioning a child's participation in a game on the child disclosing more personal information than is reasonably necessary to participate in such activity. COPPA authorizes the FTC and the State Attorneys General to bring actions against Web site operators to enforce the statute, and provides for penalties of up to US\$42,530 per violation. A recent 2019 enforcement action resulted in civil penalties of US\$5,700,000, the largest civil penalty ever imposed under COPPA.

#### Liability Arising from User Speech and Conduct

Section 230 of the Communications Decency Act of 1996, or the "CDA," provides limited protection to interactive computer services, such as an online game service, from liability for publishing information posted or provided by others, such as the users of an online game service. The protections of the CDA, however, do not immunize interactive computer services from criminal liability under United States Federal law (e.g., obscenity or child pornography), for infringement of intellectual property law, or any state laws that are not inconsistent with the CDA. Additionally, Section 230 of the CDA is considered somewhat controversial, leading to several State law proposals seeking to limit the protections offered by the CDA by introducing legislation to carve out protection in cases of violations of state criminal law or child prostitution. Thus far, no such law has been enacted or upheld. Congress or the courts could continue to narrow the application of Section 230 of the CDA, in which case online game service operators, such as the Company, could face increased potential liability for certain speech or conduct by the users on their online game service.

#### ITEM 4.C. ORGANIZATIONAL STRUCTURE

The following is our organizational structure:

Note:

- (1) On April 13, 2018, Gravity Communications Co., Ltd. ("Gravity Communications"), a wholly-owned subsidiary in Taiwan, was incorporated.
- (2) On January 29, 2019, Gravity Game Tech Co., Ltd., a 99.9%-owned subsidiary in Thailand, was incorporated.
- (3) On February 7, 2019, PT. Gravity Game Link Co., Ltd., a 70%-owned joint venture in Indonesia, was incorporated.

#### ITEM 4.D. PROPERTY, PLANTS AND EQUIPMENT

As of December 31, 2018, our property and equipment mainly consisted of (i) game engines, (ii) network servers and (iii) PCs. As of December 31, 2018, the net book value of our property and equipment was Won 1,498 million (US\$1,346 thousand).

#### Korea

Our principal executive and administrative offices are located at 15F, 396 World Cup bukd-ro, Mapo-gu, Seoul 121-795, Korea. We currently occupy 79,825 square feet of office space, which we lease from National IT Industry Promotion

Agency, pursuant to a lease that expired on December 31, 2018 and which was renewed for two additional years

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until December 31, 2020. The annual lease payment amounts to Won 918 million (US\$ 825 thousand). The offices of NeoCyon, our 98.73% owned subsidiary, are located at 14F, 396 World Cup buk ro, Mapo gu, Seoul 121 795, Korea. NeoCyon currently occupies 12,427 square feet of office space, subleased from us. The annual lease payment amounts to Won 147 million (US\$132 thousand). We believe that the existing facilities of Gravity and NeoCyon are adequate for our current requirements and that additional space can be obtained on commercially reasonable terms to meet our future requirements.

#### United States

The offices of Gravity Interactive, our wholly owned subsidiary in the United States, are located at 7001 Village Drive, Suite 150, Buena Park, California 90621. Gravity Interactive currently occupies 6,113 square feet of office space, leased from a third party. The annual lease payment amounts to Won 357 million (US\$321 thousand). We believe that the existing facilities of Gravity Interactive are adequate for their current requirements and that additional space can be obtained on commercially reasonable terms to meet their future requirements.

#### Taiwan

Our local branch in Taiwan is located at Suite 6, 3F, No. 88, Ruihu St., Neihsu District, Taipei City. The branch occupies 7,839 square feet of office space leased from a third party. The annual lease payment amounts to Won 35 million (US\$ 31 thousand). The offices of Gravity Communications Co., Ltd. (“Gravity Communications”) our wholly-owned subsidiary in Taiwan, are located at the same office as the local branch. Gravity Communications currently occupies 7,586 square feet of office space, subleased from our local branch. The annual lease payment amounts to Won 34 million (US\$ 30 thousand). We believe that the existing facilities of our local branch and Gravity Communications are adequate for our current requirements and that additional space can be obtained on commercially reasonable terms to meet our future requirements.

#### Japan

The offices of Gravity Entertainment Corporation (“Gravity Entertainment”), our wholly owned subsidiary in Japan, are located at 12-7 Sanchoume Chuo-ku Kyobashi, Tokyo. Gravity Entertainment currently occupies 1,032 square feet of office space, leased from a third party. The annual lease payment amounts to Won 80 million (US\$72 thousand). We believe that the existing facilities of Gravity Entertainment are adequate for their current requirements and that additional space can be obtained on commercially reasonable terms to meet their future requirements.

#### ITEM 4E. UNRESOLVED STAFF COMMENTS

Not applicable.

#### ITEM 5. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

You should read the following discussion together with our consolidated financial statements and the related notes which appear elsewhere in this Annual Report. The following discussion is based on our consolidated financial statements, which have been prepared in accordance with IFRS. Our historic performance may not be indicative of our future results of operations and capital requirements and resources.

##### ITEM 5.A. OPERATING RESULTS

##### OVERVIEW

We are a leading developer and distributor of online games and mobile games in Taiwan, Korea, the Philippines and Thailand based on the number of peak concurrent users. Our headquarters is in Korea, and we are incorporated under

the laws of Korea. Also, we have a local branch in Taiwan. Our revenues have been and continue to be driven primarily by our first game, Ragnarok Online, and other games developed based on the content of Ragnarok Online, particularly the mobile game Ragnarok M: Eternal Love which represented 75.1% of our total revenues in 2018. Our future growth and profitability will be determined by our ability to enhance the features on our existing games and introduce new games with characters, features and functions that gain market acceptance and following.

In 2018, our revenues increased by 102.5% to Won 286,770 million (US\$257,690 thousand) from Won 141,623 million in 2017. We recorded a net profit attributable to owners of the parent company of Won 31,443 million (US\$28,254 thousand) in 2018 as compared to a net profit attributable to owners of the parent company of 13,319 million in 2017. Our gross profit margin decreased to 26.8% in 2018 from 33.5% in 2017. Our operating profit margin was 11.6% in 2018 with an operating profit of Won 33,368 million (US\$29,985 thousand) in 2018 as compared to an operating profit margin of 9.9% in 2017.

The increase in revenues in 2018 was primarily due to increased mobile game revenues from Ragnarok M: Eternal Love in Taiwan, Korea and Southeast Asia.

Our cost of revenues for 2018 increased as compared to 2017 mainly due to increased commissions paid for mobile services in Taiwan, Korea and Southeast Asia. Our operating expenses for 2018 increased as compared to 2017 mostly due to increased advertising expenses and research and development expenses. Our revenue trend will continue to be materially affected in the future by the popularity of online and mobile games introduced by our competitors.

Our corporate income tax rate in 2018 was 22%.

## Revenues

We have applied IFRS 15 Revenue from Contracts with Customers on January 1, 2018, the date of initial application.

We derive, and expect to continue to generate, most of our revenues from online game subscription revenue generated in the countries and markets where our games are offered by us, royalties and license fees paid by our licensees in our overseas markets, and mobile games and applications revenue. Our revenues can be classified into the following four categories:

- online games—subscription revenue;
- online games—royalties and license fees;
- mobile games and applications; and
- character merchandising, animation and other revenue.

### Online games—subscription revenue

We recognize online subscription revenue players make use of in-game premium features.

Players can access games free of charge, but may purchase game points to acquire in-game premium features. Subscription revenue consists of revenues from (i) micro transactions, and (ii) subscription fees from Internet cafés. Micro transaction fees for consumable in game items are deferred when purchased, and then recognized as revenue as they are used in the games while permanent in game items are recognized ratably as revenues over the estimated life cycle of game users. Prepaid subscription fees from Internet cafés are deferred and recognized as revenue on a monthly basis based on actual hours used.

### Online games—royalties and license fees

We license the right to distribute and market its local version of games to overseas licensees (“game licensing contracts”) in exchange for an initial prepaid license fee and/or guaranteed minimum royalty payments. We generally provide our licensees with post-contract customer support on its software products, consisting of technical support and occasional unspecified upgrades, or enhancements during the contract term. We determined that granting a license is not distinct from other promised services in the contracts, therefore, the promise to grant a license and those other promised services together are considered a single performance obligation. Revenue is recognized over time, from the commercial launch date to the expiration date of contract under IAS 18 whereas it is recognized from the date when a performance obligation is performed for the first time to the expiration date of contract under IFRS 15.



When the running royalty revenue based on the contractual royalty rate and the actual revenue of the licensee exceeds the ratably recognized guaranteed minimum, the excess is then recognized as revenue and accounts receivable. Although the accounting framework changes, the accounting treatment under the new standard would not be substantially changed.

#### Mobile games and applications revenue

Mobile games and applications revenue consists of revenues from (i) micro-transactions that users purchase in cases where we directly provide mobile game services to users; (ii) royalties and license fees from licensees to which we license the right to distribute, promote, and market its local version of mobile games in overseas countries (“game licensing contracts”); (iii) royalties and license fees from licensees to which we license the right to use the original game and intellectual property to develop new games and distribute, promote, and market those newly developed games (“IP licensing contracts”); revenues from (iv) contract development services provided by us to third parties, such as developing games embedded in mobile phones, mobile applications, and sound for mobile phones and appliances; revenues from (v) mobile games operation services for third parties.

Revenues from (i) micro-transactions and (ii) royalties and license fees from licensees for game licensing contracts are recognized in line with those of Online games. Revenue from (iii) royalties and license fees from licensees for IP licensing contracts are recognized over time, from initial IP delivery date to expiration date of contract. The nature of granting IP license is considered as a promise to provide a right to access. The accounting treatment of running royalty revenue is the same as that of game licensing contracts. Revenues from (iv) mobile application development services are recognized over time by measuring progress towards complete satisfaction of a performance obligation. The progress is measured by reference to the costs incurred up to the end of the reporting period as a percentage of total estimated costs for each contract. Revenues from (v) mobile games operation service are recognized over time as the customer simultaneously receives and consumes the benefits provided by us. The progress is measured by reference to the labor hours, which are expended evenly throughout the contract period.

#### Character merchandising, animation and other revenue

Character merchandising, animation and other revenue consists of revenue from sales of console games, game character merchandising, animation and other services, including sales of goods related to mobile phones and website development and operation services for third parties.

The following table sets forth a breakdown of revenues by type of revenue and the percentage of total revenue for the periods indicated:

| Revenue Type                            | Year Ended December 31,                                               |       |           |        |           |        |                     |  |
|-----------------------------------------|-----------------------------------------------------------------------|-------|-----------|--------|-----------|--------|---------------------|--|
|                                         | 2016                                                                  |       | 2017      |        | 2018      |        | 2018 <sup>(1)</sup> |  |
|                                         | (In millions of Korean Won and thousands of US\$, except percentages) |       |           |        |           |        |                     |  |
| Online games—subscription revenue       | ₩ 23,065                                                              | 44.9% | ₩ 36,428  | 25.7%  | ₩ 25,897  | 9.0%   | US\$ 23,272         |  |
| Online games—royalties and license fees | 12,867                                                                | 25.0  | 16,244    | 11.5   | 13,556    | 4.7    | 12,181              |  |
| Mobile games and applications           | 12,041                                                                | 23.4  | 82,624    | 58.3   | 239,489   | 83.5   | 215,203             |  |
| Character merchandising, animation and  |                                                                       |       |           |        |           |        |                     |  |
| other revenue                           | 3,423                                                                 | 6.7   | 6,327     | 4.5    | 7,828     | 2.8    | 7,034               |  |
| Total                                   | ₩ 51,396                                                              | 100%  | ₩ 141,623 | 100.0% | ₩ 286,770 | 100.0% | US\$ 257,690        |  |

Notes:

(1) For convenience only, the Won amounts are expressed in U.S. dollars at the rate of Won 1,112.85 to US\$1.00, the noon buying rate in effect on December 31, 2018 as certified by the Federal Reserve Bank of New York for customs purposes.

Cost of revenues

Our cost of revenues consists principally of the following:

- operational expenses, commissions paid, royalty payments, server depreciation expenses, server maintenance costs and related personnel costs, mobile platform fees, channeling service fees and outsourcing fees related to developing updates to games currently commercially offered;

- royalty payments to the third parties that are developers of some of the games we offer as a service distributor based on license agreements;

- royalty payments to Mr. Myoung Jin Lee for the right to use the storyline and characters from his “Ragnarok” cartoon series used in our games and other products based on Ragnarok. We paid Mr. Lee an initial license fee of Won 40 million and are required to pay royalties based on 1.0% or 1.5% of adjusted revenues (net of value added taxes and certain other expenses) or 2.5%, 5% or 10% of net income generated from the use of the Ragnarok brand, depending on the type of revenues received from the operation or licensing of Ragnarok Online.

Payments to Mr. Myoung Jin Lee amounted to Won 561 million (US\$504 thousand) for 2018 and Won 556 million for 2017. This agreement expires in January 2033.

Selling, general and administrative expenses

Selling, general and administrative expenses consist of sales commissions paid to independent promotional agents that distribute our online games to our Internet café subscribers in Korea, commissions paid to payment settlement providers, administrative expenses and related personnel expenses of executive and administrative staff, and marketing and promotional expenses and related personnel expenses.

Research and development expenses

Research and development expenses consist primarily of payroll and other overhead expenses which are all expensed as incurred. Research and development expenses for game development are capitalized only after the technological feasibility of a game is established. The technological feasibility of a game is established when game development is substantially complete, which we generally determine to be achieved when a game is open for beta testing.

Foreign currency effects

In 2018, 71.8% of our revenues were denominated in foreign currencies, primarily in NT Dollar, Thai Baht and U.S. Dollar.

In most of the countries in which our games are distributed, the revenues generated by our overseas subsidiaries and licensees are denominated in local currencies, which include NT dollar, Thai Baht, Philippine Peso, Japanese Yen, and Indonesian Rupiah. The revenues from those countries, other than the United States, Japan and European countries, are converted into the U.S. dollar for remittance of monthly royalty payments to us. Depreciation of these local currencies against the U.S. dollar will result in reduced monthly royalty payments in U.S. dollar terms, thereby having a negative impact on our net profit given that substantially all of our costs are denominated in Won.

We receive monthly royalty payments from our overseas licensees based on an agreed percentage of revenues confirmed and recorded at the end of each month applying the foreign exchange rate applicable on such date. We generally receive these royalty payments 20 to 30 days after the end of each month unless delayed due to extraordinary circumstances.

Appreciation or depreciation of the Won against these foreign currencies during this period will result in foreign currency losses or gains and affect our net profit.

As of December 31, 2018 and 2017, we had no foreign currency forward contract outstanding. See ITEM 11. “QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK—Foreign currency risk.”

#### Income tax expenses

See ITEM 3.D. “RISK FACTORS—RISKS RELATING TO OUR REGULATORY ENVIRONMENT—Adverse changes in the withholding tax rates in the countries from which we receive license fees and royalties and adverse changes in ability to realize deferred tax assets could adversely affect our net profit.” and ITEM 5.A. “OPERATING RESULTS—CRITICAL ACCOUNTING POLICIES—Deferred taxes.”

#### CRITICAL ACCOUNTING POLICIES

Our discussion and analysis of our financial condition and results of operations are based upon our financial statements, which have been prepared in accordance with IFRS. The preparation of these financial statements requires us to make estimates, judgments and assumptions that affect the reported amounts of assets and liabilities, contingent liabilities, and revenue and expenses during the reporting period. We evaluate our estimates on an ongoing basis based on historical experience and other assumptions we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. The policies discussed below are considered by our management to be critical because they are not only important to the portrayal of our financial condition and results of operations but also because the application and interpretation of these policies require both judgment and estimates of matters that are inherently uncertain and unknown. As a result, actual results may differ materially from our estimates.

#### Revenue recognition

We derive, and expect to continue to generate, most of our revenues from online game subscription revenue generated in the countries where our games are offered by us, royalties and license fees paid by our licensees in overseas markets, and mobile games and applications revenue. Our revenues can be classified into the following four categories: (i) online games—subscription revenue; (ii) online games—royalties and license fees; (iii) mobile games and applications revenue; and (iv) character merchandising, animation and other revenue. For details, see ITEM 5.A. “OPERATING RESULTS—OVERVIEW—Revenues.”

#### Impairment of non-financial assets

Impairment of non-financial assets is accounted for under IAS 36, Impairment of Assets, which requires assessment of whether there is any indication that a non-financial asset may be impaired (i.e. whether its carrying amount may be higher than its recoverable amount). IAS 36 contains a list of external and internal indicators of impairment. If there is an indication that a non-financial asset may be impaired, then the asset’s recoverable amount must be calculated.

Goodwill and intangible assets that have an indefinite useful life or are not yet available for use, are not subject to amortization and are tested annually for impairment, or more frequently if events or changes in circumstances indicate that they might be impaired. Other assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset’s carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset’s fair value less costs of disposal or value in use. Non-financial assets other than goodwill that have been impaired are reviewed for possible reversal of the impairment at the end of each reporting period.

In 2018, we recorded impairment losses of Won 623 million (US\$560 thousand) in non-financial assets.

Deferred taxes

We account for income taxes under the provisions of IAS 12, Income Taxes.

Deferred income tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred income

tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss.

Deferred tax assets are recognized only if it is probable that future taxable income will be available to utilize those temporary differences.

We recognize a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint arrangements, except to the extent that we are able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, we recognize a deferred tax asset for all deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends to settle on a net basis.

We recognize a previously unrecognized deferred tax asset to the extent that it is probable that future taxable profit will allow the deferred tax asset to be recovered. We consider multiple factors including performance, general economic environment, projected future taxable income, and periods available to deduct tax loss carryforwards and tax credit carryforwards. Deferred tax assets are dependent on future taxable income in specific tax jurisdictions during the periods in which temporary differences are deductible.

As of December 31, 2018, we have recognized deferred tax assets related to temporary differences, tax loss carryforward and tax credit carryforwards, which can be utilized based on the likelihood of future taxable income.

### Segment Reporting

An operating segment is defined as a component of a company that engages in business activities for which discrete financial information is available and that is regularly reviewed by our Chief Operating Decision Maker (the “CODM”) to make decisions about resources to be allocated to the segment and assess its performance. In accordance with International Financial Reporting Standards, or IFRS 8, Operating Segments, we currently operate and manage our business as several operating and reportable segments.

Our operating segments are consistent with our internal organizational structure, the manner in which our operations are reviewed and managed by our Chief Executive Officer, who is our CODM, the manner in which we assess operating performance and allocate resources, and the availability of separate financial information.

Our CODM does not review any information regarding total assets on an operating segment basis, and accordingly, no disclosure is made with respect thereto. We assess the performance an operating segment based on its operating profit or loss, which does not differ from the operating profit reported on the Statement of Comprehensive Income except for inter-segment transactions. The following information is available for each business segment for the years ended December 31, 2018, 2017 and 2016.

|                                           | 2018                        |                              |                                          |
|-------------------------------------------|-----------------------------|------------------------------|------------------------------------------|
|                                           | Revenue                     | Depreciation<br>Amortization | Operating<br>profit(loss) <sup>(2)</sup> |
|                                           | (In millions of Korean Won) |                              |                                          |
| Online                                    | ₩ 41,288                    | ₩ 238                        | ₩ 4,286                                  |
| Mobile                                    | 257,364                     | 473                          | 24,795                                   |
| Others                                    | 9,526                       | 715                          | 1,086                                    |
| Sub total                                 | 308,178                     | 1,426                        | 30,167                                   |
| Inter-segment eliminations <sup>(1)</sup> | (21,408 )                   | (12 )                        | 3,201                                    |
| Total                                     | ₩ 286,770                   | ₩ 1,414                      | ₩ 33,368                                 |

| 2017                                      |              |                             |           |
|-------------------------------------------|--------------|-----------------------------|-----------|
|                                           | Revenue      | Depreciation                | Operating |
|                                           | Amortization | profit(loss) <sup>(2)</sup> |           |
| (In millions of Korean Won)               |              |                             |           |
| Online                                    | ₩ 53,790     | ₩ 222                       | ₩ 14,536  |
| Mobile                                    | 87,194       | 268                         | (2,476 )  |
| Others                                    | 7,532        | 36                          | 993       |
| Sub total                                 | 148,516      | 526                         | 13,053    |
| Inter-segment eliminations <sup>(1)</sup> | (6,893 )     | (6 )                        | 982       |
| Total                                     | ₩ 141,623    | ₩ 520                       | ₩ 14,035  |

| 2016                                      |              |                             |           |
|-------------------------------------------|--------------|-----------------------------|-----------|
|                                           | Revenue      | Depreciation                | Operating |
|                                           | Amortization | profit(loss) <sup>(2)</sup> |           |
| (In millions of Korean Won)               |              |                             |           |
| Online                                    | ₩ 36,354     | ₩ 243                       | ₩ 11,147  |
| Mobile                                    | 14,003       | 260                         | (7,515 )  |
| Others                                    | 4,292        | 79                          | 301       |
| Sub total                                 | 54,649       | 582                         | 3,933     |
| Inter-segment eliminations <sup>(1)</sup> | (3,253 )     | (66 )                       | (99 )     |
| Total                                     | ₩ 51,396     | ₩ 516                       | ₩ 3,834   |

(1) Inter-segment eliminations are reflected as adjustments.

(2) Other profit or loss items that do not constitute operating profit (loss) are not separately disclosed because they are not reviewed by the chief operating decision maker by operating segment. See "—RESULTS OF OPERATIONS: 2018 COMPARED TO 2017—Segment Results".

New standards and interpretations not yet adopted by us

Certain new accounting standards and interpretations that have been published but are not mandatory for the annual reporting period commencing January 1, 2018 have not been early adopted by us. For a further description of the methods used in the preparation of our consolidated financial statements and new standards and amendments not yet adopted, see Note 2 to our financial statements.

## RESULTS OF OPERATIONS: 2018 COMPARED TO 2017

The following table summarizes our results of operations for the periods indicated:

|                                                      | Years Ended December 31,                                              |           |                     |           | %    |   |
|------------------------------------------------------|-----------------------------------------------------------------------|-----------|---------------------|-----------|------|---|
|                                                      | 2017                                                                  | 2018      | 2018 <sup>(1)</sup> | % Changes |      |   |
|                                                      | (In millions of Korean Won and thousands of US\$, except percentages) |           |                     |           |      |   |
| Statements of Comprehensive Income                   |                                                                       |           |                     |           |      |   |
| Revenues:                                            |                                                                       |           |                     |           |      |   |
| Online games-subscription revenue                    | ₩ 36,428                                                              | ₩ 25,897  | US\$ 23,272         | (28.9)    | %    |   |
| Online games-royalties and license fees              | 16,244                                                                | 13,556    | 12,181              | (16.5)    |      |   |
| Mobile games and applications                        | 82,624                                                                | 239,489   | 215,203             | 189.9     |      |   |
| Character merchandising, animation and other revenue | 6,327                                                                 | 7,828     | 7,034               | 23.7      |      |   |
| Total revenues                                       | 141,623                                                               | 286,770   | 257,690             | 102.5     |      |   |
| Cost of revenues                                     | 94,234                                                                | 210,044   | 188,744             | 122.9     |      |   |
| Gross profit                                         | 47,389                                                                | 76,726    | 68,946              | 61.9      |      |   |
| Gross profit margin <sup>(2)</sup>                   | 33.5                                                                  | %         | 26.8                | %         | 26.8 | % |
| Operating expenses:                                  |                                                                       |           |                     |           |      |   |
| Selling, general and administrative expenses         | (28,012 )                                                             | (34,820 ) | (31,288 )           | 24.3      |      |   |
| Research and development                             | (5,239 )                                                              | (8,018 )  | (7,205 )            | 53.0      |      |   |
| Other income                                         | 165                                                                   | 122       | 109                 | (26.1)    |      |   |
| Other expenses                                       | (268 )                                                                | (642 )    | (577 )              | 139.6     |      |   |
| Total operation expenses                             | 33,354                                                                | 43,358    | 38,961              | 30.0      |      |   |
| Operating profit                                     | 14,035                                                                | 33,368    | 29,985              | 137.7     |      |   |
| Operating profit margin <sup>(3)</sup>               | 9.9%                                                                  | 11.6      | %                   | 11.6      | %    |   |
| Finance income (costs)                               |                                                                       |           |                     |           |      |   |
| Finance income                                       | 1,875                                                                 | 2,073     | 1,862               | 10.6      |      |   |
| Finance costs                                        | (1,452 )                                                              | (1,002 )  | (900 )              | (31.0 )   |      |   |
| Profit before income tax                             | 14,458                                                                | 34,439    | 30,947              | 138.2     |      |   |
| Income tax expenses                                  | 1,144                                                                 | 3,053     | 2,744               | 166.9     |      |   |
| Profit for the year                                  | 13,314                                                                | 31,386    | 28,203              | 137.7     |      |   |
| Other comprehensive income(loss)                     |                                                                       |           |                     |           |      |   |

Items that maybe subsequently reclassified to income or loss

|                                             |          |          |             |       |
|---------------------------------------------|----------|----------|-------------|-------|
| Foreign currency translation adjustments    | 37       | 178      | 160         | 381.1 |
| Total comprehensive income for the year     | 13,351   | 31,564   | 28,363      | 136.4 |
| Profit (loss) attributable to:              |          |          |             |       |
| Owners of the Parent Company                | ₩ 13,319 | ₩ 31,443 | US\$ 28,254 | 136.1 |
| Non-controlling interest <sup>(4)</sup>     | (5 )     | (57 )    | (51 )       | 1,040 |
| Total comprehensive income attributable to: |          |          |             |       |
| Owners of the Parent Company                | ₩ 13,356 | ₩ 31,621 | US\$ 28,414 | 136.7 |
| Non-controlling interest <sup>(4)</sup>     | (5 )     | (57 )    | (51 )       | 1,040 |

N/M = not meaningful

## Notes:

- (1) For convenience only, the Won amounts are expressed in U.S. dollars at the rate of Won 1,112.85 to US\$1.00, the noon buying rate in effect on December 31, 2018 as certified by the Federal Reserve Bank of New York for customs purposes.
- (2) Gross profit margin for each period is calculated by dividing gross profit by total revenue for each period.
- (3) Operating profit margin for each period is calculated by dividing operating profit by total revenue for each period.
- (4) Represents the non-controlling interest in NeoCyon, a 96.1% held subsidiary acquired in December 2005, which increased to 98.7% in August 2018 and Gravity Games, a subsidiary acquired in October 2010, in which our initial ownership was 50.8% and which increased to 85.5% in August 2013. Gravity Games was liquidated in September 2018.

## Revenues

Our total revenues increased by 102.5% to Won 286,770 million (US\$257,690 thousand) in 2018 from Won 141,623 million in 2017, primarily due to:

- a 189.9% increase in mobile games and applications revenue to Won 239,489 million (US\$215,203 thousand) in 2018 from Won 82,624 million in 2017. This increase was mainly attributable to increased revenues from Ragnarok M: Eternal Love which was launched in Taiwan in October 2017, in Korea in March 2018 and in Southeast Asia in October 2018;
- a 28.9% decrease in subscription revenue to Won 25,897 million (US\$23,272 thousand) in 2018 from Won 36,428 million in 2017, which was due mainly to decreased revenues from Ragnarok Online and Ragnarok Prequel in Taiwan resulting from increased competition and weak demand for the game;
  - a 16.5% decrease in royalties and license fees to Won 13,556 million (US\$12,181 thousand) in 2018 from Won 16,244 million in 2017, which was mainly due to (i) decreased revenues from Ragnarok Online in Thailand and Indonesia; and (ii) decreased revenue from a game development and publishing agreement of Ragnarok Online II in China which did not occur in 2018; and
- a 23.7% increase in character merchandizing, animation and other revenue to Won 7,828 million (US\$7,034 thousand) in 2018 from Won 6,327 million in 2017, which was mainly attributable to increased revenues from NeoCyon's website development and operation services for third parties.

## Cost of revenues

Our cost of revenues increased by 122.9% to Won 210,044 million (US\$188,744 thousand) in 2018 from Won 94,234 million in 2017, primarily due to:

- 147.1% increase in commission paid to Won 188,944 million (US\$169,784 thousand) in 2018 from Won 76,464 million in 2017, which was mainly due to increased commissions paid for service fees of mobile platforms, royalty payments and outsourcing fees for game services related to Ragnarok M: Eternal Love; and
- 24.3% increase in salaries to Won 11,014 million (US\$9,897 thousand) in 2018 from Won 8,858 million in 2017, primarily resulting from an increase in the number of employees.

## Gross profit and gross profit margin

As a result of the foregoing, our gross profit increased by 61.9% to Won 76,726 million (US\$68,946 thousand) in 2018 from Won 47,389 million in 2017. Our gross profit margin decreased to 26.8% in 2018 from 33.5% in 2017 due to increased fees and commissions related to our services of Ragnarok M: Eternal Love.

## Operating expenses

Selling, general and administrative expenses. Our selling, general and administrative expenses increased by 24.3% to Won 34,820 million (US\$31,288 thousand) in 2018 from Won 28,012 million in 2017, primarily due to:

- 37.8% increase in advertising expenses to Won 17,263 million (US\$15,512 thousand) in 2018 from Won 12,525 million in 2017 mainly due to an increase in advertising expenses for the commercial launch of Ragnarok M: Eternal Love in Korea; and
- 29.5% increase in salaries to Won 7,080 million (US\$6,362 thousand) in 2018 from Won 5,468 million in 2017, primarily resulting from an increase in the number of employees.

Research and development. Our research and development expenses increased by 53.0% to Won 8,018 million (US\$7,205 thousand) in 2018 from Won 5,239 million in 2017, mainly due to increases in development expenses for mobile games.

Other expenses. We had Won 623 million (US\$560 thousand) in impairment loss on intangible assets in 2018, compared to impairment loss on intangible assets of Won 230 million in 2017, which mostly consisted of impairment loss on intangible assets of Legend of Sword and Fairy: Mirror's Mirage.

## Operating profit and operating profit margin

As a result of the cumulative effects of the reasons stated above, we recorded an operating profit of Won 33,368 million (US\$29,985 thousand) in 2018, compared to operating profit of Won 14,035 million in 2017, and our operating profit margin was 11.6% and 9.9% in 2018 and 2017, respectively.

## Net finance income (costs)

We recorded a net finance income of Won 1,071 million (US\$962 thousand) in 2018, compared to a net finance income of Won 423 million in 2017. Net finance income (costs) includes primarily interest income and foreign currency gain (loss).

## Income tax expenses

We recorded an income tax expense of Won 3,053 million (US\$2,744 thousand) in 2018, compared to an income tax expense of Won 1,144 million in 2017. Our income tax expenses increased as a result of an increase in our taxable income.



#### Non controlling interest

Non controlling interest represents the net loss from NeoCyon, our 98.7% held subsidiary and net loss from Gravity Games, our 85.5% held subsidiary, attributable to third party minority interest holders. We acquired 96.1% of the voting equity of NeoCyon in 2005 and increased our ownership in NeoCyon to 98.7% in August 2018. We acquired 50.8% of the voting equity of Gravity Games in 2010 and increased our ownership in Gravity Games to 85.5% in August 2013. Gravity Games was liquidated in September 2018.

#### Profit attributable to owners of the parent company

As a result of the foregoing, we recorded profit attributable to owners of the parent company of Won 31,443 million (US\$28,254 thousand) in 2018 compared to profit attributable to owners of the parent company of Won 13,319 million in 2017.

#### Segment Results

Our net revenue from online game operations, prior to adjusting for inter-segment transactions, was Won 41,288 million (US\$37,101 thousand) in 2018, which was a 23.2% decrease from Won 53,790 million in 2017. This was mainly due to decreased subscription revenues from Ragnarok Online and Ragnarok Prequel in Taiwan. Our net revenue from mobile game operations was Won 257,364 million (US\$231,266 thousand) in 2018, which was 195.2% increase from Won 87,194 million in 2017. This was mainly due to increased revenues from Ragnarok M: Eternal Love in Taiwan, in Korea and Southeast Asia.

Prior to adjusting for inter-segment transactions, we recorded an operating profit of Won 4,286 million (US\$3,851 thousand) from online game operations in 2018, which was a decrease of 70.5% from Won 14,536 million in 2017, resulting mainly from decreased revenues from Ragnarok Online and Ragnarok Prequel in Taiwan. Also, our operating profit from mobile game operations was Won 24,795 million (US\$22,281 thousand) in 2018, compared to an operating loss of Won 2,476 million in 2017, mainly due to increased revenues from Ragnarok M: Eternal Love.

## RESULTS OF OPERATIONS: 2017 COMPARED TO 2016

The following table summarizes our results of operations for the periods indicated:

|                                                      | 2016                                            | 2017      | %<br>Changes |   |
|------------------------------------------------------|-------------------------------------------------|-----------|--------------|---|
|                                                      | (In millions of Korean Won, except percentages) |           |              |   |
| Statements of Comprehensive Income                   |                                                 |           |              |   |
| Revenues:                                            |                                                 |           |              |   |
| Online games-subscription revenue                    | ₩ 23,065                                        | ₩ 36,428  | 57.9         | % |
| Online games-royalties and license fees              | 12,867                                          | 16,244    | 26.2         |   |
| Mobile games and applications                        | 12,041                                          | 82,624    | 586.2        |   |
| Character merchandising, animation and other revenue | 3,423                                           | 6,327     | 84.8         |   |
| Total revenues                                       | 51,396                                          | 141,623   | 175.6        |   |
| Cost of revenues                                     | 29,587                                          | 94,234    | 218.5        |   |
| Gross profit                                         | 21,809                                          | 47,389    | 117.3        |   |
| Gross profit margin <sup>(1)</sup>                   | 42.4                                            | %         | 33.5         | % |
| Operating expenses:                                  |                                                 |           |              |   |
| Selling, general and administrative expenses         | (15,977)                                        | (28,012 ) | 75.3         |   |
| Research and development                             | (1,973 )                                        | (5,239 )  | 165.5        |   |
| Other income                                         | 44                                              | 165       | 275.0        |   |
| Other expenses                                       | (69 )                                           | (268 )    | 288.4        |   |
| Total operation expenses                             | 17,975                                          | 33,354    | 85.6         |   |
| Operating profit                                     | 3,834                                           | 14,035    | 266.1        |   |
| Operating profit margin <sup>(2)</sup>               | 7.5                                             | %         | 9.9          | % |
| Finance income (costs)                               |                                                 |           |              |   |
| Finance income                                       | 1,666                                           | 1,875     | 12.5         |   |
| Finance costs                                        | (1,673 )                                        | (1,452 )  | (13.2 )      |   |
| Profit before income tax                             | 3,827                                           | 14,458    | 277.8        |   |
| Income tax expenses                                  | 3,240                                           | 1,144     | (64.7 )      |   |
| Profit for the year                                  | 587                                             | 13,314    | 2,168.1      |   |

|                                                              |       |          |         |
|--------------------------------------------------------------|-------|----------|---------|
| Other comprehensive income(loss)                             |       |          |         |
| Items that maybe subsequently reclassified to income or loss |       |          |         |
| Foreign currency translation adjustments                     | (77 ) | 37       | N/M     |
| Total comprehensive income for the year                      | 510   | 13,351   | 2,517.8 |
| Profit (loss) attributable to:                               |       |          |         |
| Owners of the Parent Company                                 | ₩ 657 | ₩ 13,319 | 1,927.2 |
| Non-controlling interest <sup>(3)</sup>                      | (70 ) | (5 )     | (92.9 ) |
| Total comprehensive income attributable to:                  |       |          |         |
| Owners of the Parent Company                                 | ₩580  | ₩ 13,356 | 2,202.8 |
| Non-controlling interest <sup>(3)</sup>                      | (70 ) | (5 )     | (92.9 ) |

N/M = not meaningful

#### Notes:

- (1) Gross profit margin for each period is calculated by dividing gross profit by total revenue for each period.
- (2) Operating profit margin for each period is calculated by dividing operating profit by total revenue for each period.
- (3) Represents the non controlling interest in NeoCyon, a 96.1% held subsidiary acquired in December 2005, and Gravity Games, a subsidiary acquired in October 2010, in which our initial ownership was 50.8% and which increased to 85.5% in August 2013.

#### Revenues

Our total revenues increased by 175.6% to Won 141,623 million in 2017 from Won 51,396 million in 2016, primarily due to:

- 57.9% increase in subscription revenue to Won 36,428 million in 2017 from Won 23,065 million in 2016, which was due mainly to increased revenues from Ragnarok Online and Ragnarok Prequel in Taiwan and Ragnarok Online in the United States and Canada. We began to directly offer Ragnarok Online in Taiwan since June 2016 after our distribution agreement with a local publisher was terminated, and we commercially launched Ragnarok Prequel in Taiwan in July 2016;
- 26.2% increase in royalties and license fees to Won 16,244 million in 2017 from Won 12,867 million in 2016, which was mainly due to (i) increased revenues from Ragnarok Online in Japan, Philippines, Singapore, Malaysia and Indonesia; and (ii) increased revenue from a game development and publishing agreement of Ragnarok Online II in China. Ragnarok Online was relaunched in Indonesia, Philippines and Singapore and Malaysia by a local licensee in February 2017, June 2017 and November 2017, respectively;
- 586.2% increase in mobile games and applications revenue to Won 82,624 million in 2017 from Won 12,041 million in 2016. This increase was mainly attributable to increased revenues from Ragnarok M: Eternal Love which was launched in Taiwan in October 2017, Ragnarok R in Korea, Taiwan and Thailand, and the global servicing except in Japan, China and Korea of RO: Idle Poring starting from September 2017; and

■ 84.8% increase in character merchandising, animation and other revenue to Won 6,327 million in 2017 from Won 3,423 million in 2016, which was mainly attributable to increased revenues from NeoCyon's website development and operation services for third parties.

#### Cost of revenues

Our cost of revenues increased by 218.5% to Won 94,234 million in 2017 from Won 29,587 million in 2016, primarily due to:

■ 568.5% increase in commission paid to Won 76,464 million in 2017 from Won 11,439 million in 2016, which was mainly due to increased commission paid for game services related to Ragnarok M: Eternal Love, Ragnarok R, RO: Idle Poring and Ragnarok Prequel; and

■ 71.9% increase in outsourcing fees to Won 4,746 million in 2017 from Won 2,761 million in 2016 primarily resulting from an increase in outsourcing fees for NeoCyon's website development and operation service for third parties.

#### Gross profit and gross profit margin

As a result of the foregoing, our gross profit increased by 117.3% to Won 47,389 million in 2017 from Won 21,809 million in 2016. Our gross profit margin decreased to 33.5% in 2017 from 42.4% in 2016 due to increased fees and commissions related to our services of Ragnarok Online IP based mobile games.

#### Operating expenses

Selling, general and administrative expenses. Our selling, general and administrative expenses increased by 75.3% to Won 28,012 million in 2017 from Won 15,977 million in 2016, primarily due to:

■ 419.5% increase in advertising expenses to Won 12,525 million in 2017 from Won 2,411 million in 2016 mainly due to an increase in advertising expenses for the commercial launch of Ragnarok R, Ragnarok Zero and Sword and Fairy: Mirror's Mirage in Korea; and

■ 17.6% increase in salaries to Won 5,468 million in 2017 from Won 4,650 million in 2016, primarily resulting from an increase in the number of employees.

Research and development. Our research and development expenses increased by 165.5% to Won 5,239 million in 2017 from Won 1,973 million in 2016, mainly due to increases in development expenses for mobile games.

Other expenses. We had Won 230 million in impairment loss on intangible assets in 2017, compared to impairment loss on intangible assets of Won 5 million in 2016, which mostly consisted of impairment loss on intangible assets of the Legend of Sword and Fairy: Mirror's Mirage.

#### Operating profit and operating profit margin

As a result of the cumulative effects of the reasons stated above, we recorded an operating profit of Won 14,035 million in 2017, compared to operating profit of Won 3,834 million in 2016, and our operating profit margin was 9.9% and 7.5% in 2017 and 2016, respectively.

#### Net finance income (costs)

We recorded net finance income of Won 423 million in 2017, compared to net finance costs of Won 7 million in 2016. Net finance income (costs) includes primarily interest income and foreign currency gain (loss).

#### Income tax expenses

We recorded an income tax expense of Won 1,144 million in 2017, compared to an income tax expense of Won 3,240 million in 2016. The decrease was mostly due to the recognition of deferred tax benefits in 2017 related to

Gravity. Up to 2016, we had not recognized the deferred tax assets of Gravity. However, in 2017, we concluded that Won 3,036 million of deferred tax assets related to temporary differences, tax loss carryforwards and tax credit carryforwards are realizable based on historical performances, such as the stable growth of existing online games and success of new mobile games, and business plans that include reasonable forecasts on revenues and expenses.

#### Non controlling interest

Non controlling interest represents the net profit from NeoCyon, our 96.1% held subsidiary and net loss from Gravity Games, our 85.5% held subsidiary, attributable to third party minority interest holders. We acquired 96.1% of the voting equity of NeoCyon in 2005. We acquired 50.8% of the voting equity of Gravity Games in 2010 and increased our ownership in Gravity Games to 85.5% in August 2013.

#### Profit attributable to owners of the parent company

As a result of the foregoing, we recorded profit attributable to owners of the parent company of Won 13,319 million in 2017 compared to profit attributable to owners of the parent company of Won 657 million in 2016.

#### Segment Results

Our net revenue from online game operations, prior to adjusting for inter-segment transactions, was Won 53,790 million in 2017, which was a 48.0% increase from Won 36,354 million in 2016.

This was mainly due to increased subscription revenues from Ragnarok Online and Ragnarok Prequel in Taiwan and Ragnarok Online in the United States and Canada. Our net revenue from mobile game operations was Won 87,194 million in 2017, which was 522.7% increase from Won 14,003 million in 2016. This was mainly due to increased revenues from Ragnarok M: Eternal Love in Taiwan, Ragnarok R in Korea, Taiwan and Thailand and the global servicing of RO: Idle Poring except in Japan, China and Korea.

Prior to adjusting for inter-segment transactions, we recorded an operating profit of Won 14,536 million from online game operations in 2017, which was an increase of 30.4% from Won 11,147 million in 2016, resulting mainly from increased revenues from Ragnarok Online and Ragnarok Prequel in Taiwan and Ragnarok Online in Japan, the Philippines, the United States and Canada. Also, our operating loss from mobile game operations was Won 2,476 million in 2017, which was a decrease of 67.1% from Won 7,515 million in 2016, mainly due to increased revenues from Ragnarok M: Eternal Love, Ragnarok R and RO: Idle Poring.

## ITEM 5.B. LIQUIDITY AND CAPITAL RESOURCES

## Liquidity

The following table sets forth the summary of our cash flows for the periods indicated:

|                                                              | Year Ended December 31,                           |          |          |                     |
|--------------------------------------------------------------|---------------------------------------------------|----------|----------|---------------------|
|                                                              | 2016                                              | 2017     | 2018     | 2018 <sup>(1)</sup> |
|                                                              | (In millions of Korean Won and thousands of US\$) |          |          |                     |
| Cash and cash equivalents at beginning of year               | ₩ 24,909                                          | ₩ 16,720 | ₩ 39,095 | US\$ 35,131         |
| Net cash inflow from operating activities                    | 2,494                                             | 26,136   | 35,972   | 32,324              |
| Net cash inflow (outflow) from investing activities          | (10,667)                                          | (2,982 ) | 10,823   | 9,725               |
| Net cash inflow (outflow) from financing activities          | —                                                 | —        | (197 )   | (177 )              |
| Effect of exchange rate changes on cash and cash equivalents | (16 )                                             | (779 )   | 358      | 322                 |
| Net increase (decrease) in cash and cash equivalents         | (8,189 )                                          | 22,375   | 46,956   | 42,194              |
| Cash and cash equivalents at end of year                     | ₩ 16,720                                          | ₩ 39,095 | ₩ 86,051 | US\$ 77,325         |

Note:

(1) For convenience only, the Won amounts are expressed in U.S. dollars at the rate of Won 1,112.85 to US\$1.00, the noon buying rate in effect on December 31, 2018 as certified by the Federal Reserve Bank of New York for customs purposes.

Prior to the commercial launch of Ragnarok Online in August 2002, our principal sources of liquidity were cash from equity financing and incurrence of debt. Following the commercial launch of Ragnarok Online, our principal sources of liquidity have been cash flows from our operating activities and the proceeds from our initial public offering of ADSs in February 2005. As of December 31, 2018, we had approximately Won 86,051 million (US\$77,325 thousand) in cash and cash equivalents. Our cash and cash equivalents primarily consist of bank deposits with a maturity of three months or less at the time of purchase and money market instruments where the underlying securities have a maturity of three months or less. Net cash provided by investing activities has consisted primarily of decrease in short-term financial instruments, and purchases of intangible assets and property and equipment. Our net property and equipment increased from Won 946 million as of December 31, 2017 to Won 1,498 million (US\$1,347 thousand) as of December 31, 2018 mainly due to the purchase of property and equipment of Won1,141 million (US\$1,026 thousand). Our intangible assets increased from Won 1,036 million as of December 31, 2017 to Won 1,163 million (US\$1,045 thousand) due to the acquisition of intangible assets during 2018.

Our cash investment policy emphasizes liquidity and preservation of principal over other portfolio considerations. We invest our cash in bank deposits and short term financial instruments which primarily consist of money market instruments with maturities of one year or less. Our short term financial instruments decreased from Won 22,500 million as of December 31, 2017 to Won 9,500 million as of December 31, 2018. The decrease in our short-term financial instruments in 2018 primarily resulted from the conversion of short-term financial instruments into cash and cash equivalents.

We generate cash primarily through revenues from mobile games and applications as well as subscription revenues, royalties and license fees from our online games in various countries as described in ITEM 5.A. “OPERATING RESULTS—OVERVIEW—Revenues.” The level of popularity of our games in the marketplace is a key factor in how

much cash we can generate. Most of our cash disbursements relate to costs such as salaries and other overhead costs for game servicing, other selling, general and administrative activities, and R&D activities.

Net cash inflow from operating activities. Net cash inflow from operating activities increased to Won 35,972 million (US\$32,324 thousand) in 2018 from Won 26,136 million in 2017, which was primarily due to increased net profit as a result of operating activities in 2018. The increase in net cash inflow from operating activities in 2017 as compared to 2016 was primarily due to increased net profit as a result of operating activities and a decrease in working capital.

Net cash inflow from investing activities. Net cash provided by our investing activities in 2018 was Won 10,823 million (US\$9,725 thousand), compared to Won 2,982 million of net cash used in our investing activities in 2017. Such change primarily reflected Won 13,000 million (US\$11,682 thousand) of net decrease of short-term financial instruments. The decrease in net cash outflow from investing activities in 2017 as compared to 2016 was mainly due to Won 500 million of net increase of short-term financial instruments, compared to net increase of Won 10,500 million of short-term financial instruments in 2016.

Net cash outflow from financing activities. Net cash outflow from financing activities occurred in 2018, mainly due to repayments of the current portion of lease liabilities.

#### Capital resources

We generate cash primarily through revenues from mobile games. As our overseas operations are conducted primarily through our local branch in Taiwan, our subsidiaries and our overseas licensees, our ability to finance our operations and any debt that we or our subsidiaries may incur depends, in part, on the payment of royalties and other fees by our overseas licensees and, to a lesser extent, the flow of dividends from our subsidiaries.

As of December 31, 2018, our primary source of liquidity was Won 86,051 million (US\$77,325 thousand) of cash and cash equivalents. We believe that our available cash and cash equivalents and net cash provided by operating activities will be sufficient to meet our capital needs through at least the first quarter of 2020. However, we cannot assure you that our business or operations will not change in a manner that would consume available capital resources more rapidly than anticipated. We may require additional cash resources due to changed business conditions or other future developments, including any significant investments or acquisitions. If these sources are insufficient to satisfy our cash requirements, we may seek to sell additional securities either in the form of equity or debt. In the past, we raised cash resources through the issuance of common shares. The sale of additional equity securities or convertible debt securities could result in additional dilution to our shareholders. In addition, we may seek to incur indebtedness through the issuance of debt securities or by obtaining a credit facility. The incurrence of indebtedness would result in increased debt service obligations and could result in operating and financial covenants that would restrict operations.

We expect to have capital expenditure requirements for the ongoing expansion into other markets, including expenditures for expanding and upgrading our existing server equipment continuously, for developing new games internally, for acquiring and publishing third party games, or for investing in enhancing our technological, marketing, distributing and servicing capabilities. We believe that our internal cash flow from operations, together with our proceeds from our initial public offering in February 2005, will be sufficient to satisfy our working capital requirements through at least the first quarter of 2020, including our new game development expenditures.

#### ITEM 5.C. RESEARCH AND DEVELOPMENT, PATENTS AND LICENSES, ETC.

To remain competitive, we have continued to focus on our research and development efforts. Our research and development efforts and plans consist of the following:

- Strategy and planning—overall game design and review of technical feasibility, market feasibility and the game development process;
- Graphics—designing game characters and game environments, with the objective of optimizing the overall gaming experience;
-

Server programming—server design and development, handling interconnections, validation, security, character data and game process coordination and facilitating online communication among players; and

Client programming—enhancing the visual and sound experience and movement simulation of game characters.

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Our research and development expenditures were Won 8,018 million (US\$7,205 thousand), Won 5,239 million and 1,973 million in 2018, 2017 and 2016, respectively. Our research and development expenses increased in 2018 mainly due to an increase in research and development expenses for mobile games.

See ITEM 4.B. “BUSINESS OVERVIEW—GAME DEVELOPMENT AND PUBLISHING” for information regarding our research and development and ITEM 4.B. “BUSINESS OVERVIEW—INTELLECTUAL PROPERTY” for information regarding our intellectual property.

#### ITEM 5.D. TREND INFORMATION

Trends, uncertainties and events which could have a material impact on our sales, operating revenues and liquidity and capital resources are discussed above in ITEM 5.A. “OPERATING RESULTS” and ITEM 5.B. “LIQUIDITY AND CAPITAL RESOURCES.”

#### ITEM 5.E. OFF BALANCE SHEET ARRANGEMENTS

There are no off balance sheet arrangements that have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditure or capital resources that are material to investors.

#### ITEM 5.F. TABULAR DISCLOSURE OF CONTRACTUAL OBLIGATIONS

The following table sets forth a summary of our contractual cash obligations due by period as of December 31, 2018:

|                             | Payments Due by Period |                     |              |              |                         |
|-----------------------------|------------------------|---------------------|--------------|--------------|-------------------------|
|                             | Total                  | Less than<br>1 Year | 1-3<br>Years | 3-5<br>Years | More than<br>5<br>Years |
| (In millions of Korean Won) |                        |                     |              |              |                         |
| Operating lease obligations | ₩ 5,330                | ₩ 2,592             | ₩ 2,738      | ₩ —          | ₩ —                     |
| Purchase obligations        | 1,089                  | 1,089               | —            | —            | —                       |
| Accrued severance benefits  | 258                    | 258                 | —            | —            | —                       |
| Total                       | ₩ 6,677                | ₩ 3,939             | ₩ 2,738      | ₩ —          | ₩ —                     |

Long term debt obligations. We have financed our operations primarily through cash flows from operations as well as proceeds from our initial public offering of ADSs in February 2005. Therefore, there are currently no long term debt obligations.

Operating lease obligations. With respect to our operating lease obligations, the lease payments due by December 31, 2019 are Won 918 million, Won 357 million, Won 35 million, Won 144 million and Won 11 million for our principal offices in Seoul, offices for our subsidiary in the United States, a local branch office, rental servers in Taiwan and company vehicle, respectively. The lease terms expire in December 2020, October 2021, May 2019, March 2019 and January 2023, respectively. The renewal terms in all of the leases are subject to market conditions.

Purchase obligations. In February 2018, we entered into an agreement with Auer Media & Entertainment Corp. to obtain the right to publish Dawn Break in Korea. In May 2018, we entered into an agreement with Xiamen Woobest

Interactive Network Technology Co.,Ltd. to obtain the rights to publish Blood War M in Korea. In March 2018, we entered into an agreement with Pin You Technology to obtain the right to publish Valor Guard Tactics in The United States/Canada, Philippines, Singapore, Thailand, Malaysia, Taiwan, Hong Kong, Macau and Korea. Also, in June 2018, we entered into an agreement with Funigloo Co., Ltd. to obtain the rights to publish Latale W in Japan. As of December 31, 2018, we are to pay the remaining license fees and guaranteed minimum royalties in installments based on the progress of the development of the games.

Accrued severance benefits. Employees and executive officers in Korea with one year or more of service are entitled to receive a lump sum payment upon termination of their employment with us based on the length of service and their rate of pay at the time of termination. The annual severance benefits expense charged to operations is calculated based upon the net change in the accrued severance benefits payable at the balance sheet date based on the guidance of IAS 19, Employment Benefits. As severance benefits have no specific maturities, they are not allocated to the table that sets forth a summary of our contractual cash obligations due by period as of December 31, 2018.

#### Other Commitments and Liabilities

For a description of our commercial commitments and contingent liabilities, see Note 10 to our consolidated financial statements included in this Annual Report. For a description of our legal proceedings, see ITEM 8.A.

“CONSOLIDATED STATEMENTS AND OTHER FINANCIAL INFORMATION—LEGAL PROCEEDINGS.”

## ITEM 6. DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES

### ITEM 6.A. DIRECTORS AND SENIOR MANAGEMENT

The following table sets forth certain information relating to our directors and executive officers as of April 19, 2019. The business address of all of our directors and executive officers is our registered office at 15F, 396 World Cup buk-ro, Mapo-gu, Seoul 121-795, Korea.

| Name               | Age | Position                                                       |
|--------------------|-----|----------------------------------------------------------------|
| Hyun Chul Park     | 46  | Chief Executive Officer and Executive Director                 |
| Yoshinori Kitamura | 51  | Chairman of the Board of Directors and Chief Operating Officer |
| Heung Gon Kim      | 53  | Chief Financial Officer                                        |
| Kazuki Morishita   | 45  | Executive Director                                             |
| Kazuya Sakai       | 54  | Executive Director                                             |
| Doo Hyun Ryu       | 58  | Independent Director                                           |
| Jung Yoo           | 58  | Independent Director                                           |
| Yong Seon Kwon     | 61  | Independent Director                                           |

Hyun Chul Park has served as our Chief Executive Officer and Executive Director since March 2011 and was an officer of our corporate management office from May 2009 to March 2011. Mr. Park has also been a Director at Gravity Interactive since November 2014. He has been a Director and the Chief Operating Officer at NeoCyon since December 2009 and April 2012, respectively, and was a Director at Gravity Games from October 2010 to March 2018 and Chief Strategy Officer at NeoCyon from October 2010 to March 2012. He has also been a Director at Gravity Communications since April 2018. He has been general manager of the GV Business Division (formerly known as International Business Division) at GungHo Online Entertainment, Inc. since September 2007. He worked as a general manager at the Content Producing Department of SEGA Networks (China) Co., Ltd. from July 2005 to September 2007 and as manager of the Asia Division at SEGA Corporation from April 2004 to July 2005. He was a manager at the Overseas Marketing Team at ActozSoft Co., Ltd. from October 2002 to March 2004 and at Siementech Co., Ltd. from October 2001 to October 2002. He worked as part of the Engineer Team of Toyota Vista Tokyo Co., Ltd. from April 1998 to July 2001. Mr. Park obtained a diploma in Automotive Maintenance from the Tokyo College of Technology, which has since been renamed to the Tokyo College of Automotive Technology.

Yoshinori Kitamura has served as our Executive Director since March 2008, Chief Operating Officer since June 2008 and Chairman of the Board of Directors since April 2011. Mr. Kitamura has also been a Director and Chief Executive Officer at NeoCyon since October 2008 and since October 2009, respectively. He has been Chief Executive Officer of Gravity Entertainment, Gravity Interactive, Gravity Communications and PT. Gravity Game Link since March 2008, July 2008, April 2018 and February 2019, respectively. He was also a Director at Gravity Games from October 2010 to March 2018 and a Director at Gravity EU SAS from July 2011 to November 2014. Mr. Kitamura has also been a Director and Executive General Manager of the GV Business Division (formerly known as International Business Division) at GungHo Online Entertainment, Inc. since March 2006 and June 2007, respectively, and was an Executive General Manager of the Marketing Division at GungHo Online Entertainment, Inc. from February 2003 to June 2007. He worked as a Director of GungHo Online Entertainment Korea, Inc. and GungHo Works, Inc. from March 2007 to October 2008 and from March 2008 to June 2008, respectively. Mr. Kitamura was a Director of L5 Games Inc. from July 2008 to its liquidation in August 2008. Mr. Kitamura also worked at NC Japan K.K. as marketing manager from January 2002 to January 2003 and ICC Corporation as business development manager from September 1999 to December 2001. Mr. Kitamura holds a bachelor's degree in English Language and Literature from Bunkyo University.

Heung Gon Kim has served as our Chief Financial Officer since September 2008. Mr. Kim was the Chief Financial Officer at Gravity Interactive from June 2009 to March 2019 and has also been a Director at Gravity Interactive since March 2011. Mr. Kim was a liquidator of Gravity Games from March 2018 to September 2018. He was a Director of Gravity Games from October 2010 to March 2018 and Chief Executive Officer of Gravity Games from March 2013 to March 2018. Mr. Kim has also been a Director of Gravity Entertainment since March 2011. He has been a Director and Chief Financial Officer of NeoCyon since March 2011 and May 2011, respectively. He has been a Director and Chief Financial Officer of Gravity Communications since April 2018. He has also been a Director of PT. Gravity Game Link since February 2019. Mr. Kim was the general manager of our financial management division and accounting & treasury department from March 2007 to September 2008 and from September 2006 to March 2007, respectively. He also worked as a manager of our accounting team from April 2004 to September 2006. Mr. Kim worked at Modottel, Inc. as accounting team manager from June 2002 to April 2004. Mr. Kim holds a bachelor's degree in Accounting from Chung Ang University.

Kazuki Morishita has served as our Executive Director since March 2008. Mr. Morishita has also been the President and Chief Executive Officer of GungHo Online Entertainment, Inc. since January 2004 and was Chief Operating Officer of GungHo Online Entertainment, Inc. from August 2002 to January 2004. In addition, he was a director of Game Arts Co., Ltd. from December 2005 to March 2008 and has been the President of Game Arts Co., Ltd. since March 2008. Mr. Morishita has also been a director of GungHo Online Entertainment America, Inc. and Grasshopper Manufacture, Inc. since March 2012 and March 2018, respectively. He was a director at SUPERTRICK GAMES, Inc., from February 2013 to May 2018 and has been a Chief Executive Officer since June 2018. Mr. Morishita was a director at Acquire Corp. and Kahon 3 Oy from October 2011 to November 2014, and from December 2013 to September 2014, respectively. Mr. Morishita was the Chairman of GungHo Works, Inc. from October 2007 to December 2009 and worked as a Director at GungHo Online Entertainment Korea, Inc. from March 2007 to October 2008 and as a Director at Overdriver Game Technologies Ltd. from June 2012 to August 2013. He also was a general manager of the E service department at OnSale, Inc. from May 2001 to August 2002. Mr. Morishita served as Director of Kickers Network, Inc. from December 2000 to April 2001 and as Director of Dolphin Net, Inc. from March to November in 2000. Mr. Morishita worked as chief of the system sales department at Softcreate Co., Ltd. from July 1996 to February 2000. Mr. Morishita graduated from the High School Affiliated with Chiba University of Commerce.

Kazuya Sakai has served as our Executive Director since March 2009. He also served as Chief Financial Officer and Director since April 2004 and March 2005 respectively, and was the Investor Relations Officer of GungHo Online Entertainment, Inc., from July 2011 to April 2014. He has served as Director of Games Art Co., Ltd., GungHo Gamania Co., Ltd., PlayPhone, Inc., Acquire Corp., GungHo Online Entertainment Asia Pacific Pte. Ltd., Grasshopper Manufacture, Inc., GungHo Online Entertainment America, Inc., SUPERTRICK GAMES, Inc. and mspo, Inc. since March 2017, December 2015, August 2015, July 2015, September 2014, March 2018, March 2012,

February 2013 and April 2018 respectively. Mr. Sakai was a Director at GGF B.V. from October 2013 to September 2014. He was a Director at Overdriver Game Technologies Ltd. from June 2012 to August 2013, and an Auditor of Acquire Corp. from October 2011 to July 2015. Also, he was Chief Executive Officer of Capri, Inc. from October 2008 to December 2009. He was a Director of Gravity Entertainment from March 2008 to March 2011, and a Director of GungHo Works, Inc. from October 2007 to December 2009. Mr. Sakai was a Director of GungHo Online Entertainment Korea, Inc. from March 2007 to October 2008 and Chief Executive Officer in October 2008 to its liquidation in October 2008. He was Chief Executive Officer of GungHo Asset Management, Inc. from January 2007 to October 2008. Mr. Sakai served as a general manager of Administration Division, Director and Chief Executive Officer of Expression Tools, Inc. from January 1993 to March 1996, from April 1996 to April 2000, and from April 2000 to November 2003, respectively. He worked at The Kyushu Sogo Bank, Ltd., the current name of which is The Shinwa Bank, Ltd., from April 1987 to December 1992. Mr. Sakai graduated from Kyushu Sangyo University with a bachelor's degree in Commercial Science.

Doo Hyun Ryu has served as our Independent Director since March 2011. Mr. Ryu has been a Partner, Logos Law, LLC since June 2001 and the head of International Legal and Business Affairs Team and a branch manager of the Vietnam Office of Logos Law, LLC since May 2010. He also previously worked at Logos Law, LLC as a Partner from June 2001 to May 2008, a branch manager of the Vietnam Office from May 2006 to May 2008 and a branch manager of the Cambodia Office from December 2007 to May 2008. He has served as an arbitrator of the Korean Commercial Arbitration Board and Shanghai International Arbitration Center since June 2011 and March 2013, respectively. He was also a member of Legal Services Development Committee of the Korean Bar Association from March 2005 to March 2014. Mr. Ryu was a head of Management & Legal Department at Hyundai Card Co., Ltd. and Hyundai Capital Services, Inc. from May 2008 to April 2010 and a member of Information Department Committee at Hyundai Motor Group from June 2008 to April 2010. He worked as Compliance Officer of Financial Department of the Federation of Korean Industries from June 2008 to April 2010 and a member of the Special Committee for Revision of Credit Specialized Financial Business Act at the Financial Services Commission of Korea from October 2008 to January 2010. Mr. Ryu was an Independent Director of Interactivy, Inc. from April 2007 to May 2008. He was a member of Korea IT International Cooperation Agency from August 2006 to May 2008 and a member of Readers Committee of the Korea JoongAng Daily from October 1999 to October 2000. Mr. Ryu is a member of the Korea Bar Association. Mr. Ryu obtained an LL.B. degree from Seoul National University. Mr. Ryu also completed an Advanced Economists Program at the graduate school of Economics of Yonsei University.

Jung Yoo has served as our Independent Director since March 2011. Mr. Yoo has been a Director at Merry Year International since October 2014, a Representative Partner of Samhasa GP since June 2007 and a member of the Board of Trustees of Euidang Foundation since August 2007. He was an Advisor of TCAD International, Inc. from March 2008 to March 2010 and an Independent Director of NHN Japan Corporation from September 2004 to April 2006. Mr. Yoo was a Managing Director of PCCW Japan Ltd., from June 2000 to March 2007. He was a Partner of Pacific Cyber Venture Co., Ltd. from June 2000 to August 2002 and a Director of Techno Venture Co., Ltd. from June 2000 to August 2002. Mr. Yoo worked at Credit Suisse Trust and Banking Co., Ltd. from August 1998 to March 2000, Bain & Company Japan, Inc. from August 1996 to May 1998 and SK Securities Co., Ltd. from September 1991 to November 1994. Mr. Yoo received a B.A. degree in East Asian Languages and Cultures from University of Southern California, an M.A. degree in Commerce from Waseda University and an MBA degree from INSEAD.

Yong Seon Kwon was elected as our Independent Director at the Annual General Meeting of Shareholders in March 2019. Mr. Kwon has been a director of Jeonghyeon Tax Services Company since Jan 2019. He was a Taxpayer Advocate Manager at Sokcho Tax office from January 2015 to December 2018. He was a Litigation Officer of Jungbu Regional Tax office from January 2012 to December 2014 and a team manager at Jungbu Regional Tax office and Bucheon Tax office from November 2010 to January 2012. Mr. Kwon was also an investigator at Suwon Tax office from February 2000 to November 2009, and at Seocho Tax office and Ansan Tax office from February 1992 to February 2000. He was an investigator of Guro and Sogong Tax office and Gangseo Tax office from December 1983 to January 1992. Moreover, he worked on Tax Administration litigation and civil suits at Incheon District Court from February 2005 to February 2007 and Tax Administration litigation and civil suits at Uijeongbu District Court from February 2011 to February 2014. Mr. Kwon received a B.A. degree in Accounting from University of Seoul.

Jong Gyu Hwang served as our Independent Director from June 2009 to March 2019.

## ITEM 6.B. COMPENSATION

We have not extended any loans or credit to any of our directors or executive officers, and we have not provided guarantees for borrowings by any of these persons. For the year ended December 31, 2018, the aggregate amount of compensation paid by us to all directors and executive officers was Won 864 million (US\$776 thousand). At our general meeting of shareholders held on March 29, 2019, our shareholders approved an aggregate amount of up to Won 1,400 million (US\$1,258 thousand) as compensation for our directors for 2019.

None of our directors or executive officers are compensated by any third party for their respective services rendered to us as required to be disclosed pursuant to NASDAQ Rule 5250(b)(3).

Under the Labor Standard Act and the Employee Retirement Benefit Security Act, we are required to pay a severance amount to eligible employees who voluntarily or involuntarily terminate their employment with us, including through retirement. The severance amount for our officers equals the monthly salary at the time of his or her departure, multiplied by the number of continuous years of service. There is no severance benefit for our directors.

We maintain a directors' and officers' liability insurance policy covering certain potential liabilities of our directors and officers.

## ITEM 6.C. BOARD PRACTICES

### CORPORATE GOVERNANCE PRACTICES

Our ADSs are listed on the NASDAQ Stock Market, and we are subject to the NASDAQ Stock Market Rules. However, as a foreign private issuer, Gravity is exempt from certain corporate governance rules that apply to U.S. domestic companies. NASDAQ's corporate governance practice rules provide that a foreign private issuer may elect to follow its home country practices in lieu of the requirements under NASDAQ Stock Market Rule 5600 Series, subject to certain exceptions and to the extent such practices are not prohibited by home country law. The following are the significant ways in which Gravity's corporate governance practices differ from those followed by U.S. domestic companies.

Under Korean law, we are not required to have a board of directors composed of a majority of independent directors. Our Board of Directors is currently composed of a total of seven directors, three of whom are independent directors.

Under Korean law, we are not required to have independent director oversight of director nominations or a compensation committee composed solely of independent directors with a written charter which includes specific responsibilities and authority of the compensation committee. However, we have established a director nomination committee and a compensation committee in accordance with our articles of incorporation. Our director nomination committee and compensation committee are each composed of two non independent directors and one independent director.

Under Korean law, independent directors are not required to have regularly scheduled meetings at which only independent directors are present. However, our audit committee, which is composed solely of three independent directors, generally holds meetings once a month and whenever there are matters related to the financial results of the Company, related party transactions or other relevant matters. At such meetings, only independent directors are present without management.

In lieu of the requirement that shareholder approval be obtained prior to an issuance of securities in connection with: (i) the acquisition of the stock or assets of another company; (ii) equity based compensation of officers, directors, employees or consultants; (iii) a change of control; and (iv) transactions other than public offerings, as specified in NASDAQ Stock Market Rule 5635, we require a resolution to be adopted at the general meeting of shareholders when necessary under Korean law, including, for example, if an issuance of securities is related to the acquisition of all or a part of the business of another corporation which significantly affects the business of the Company.

In lieu of the requirement that copies of an annual report be delivered to shareholders within a reasonable time following the filing of the annual report with the SEC, our business report prepared under Korean law, and financial statements prepared in accordance with IFRS, are made available to shareholders one week before the day of the annual general meeting of shareholders and presented to shareholders at the ordinary general meeting of shareholders. Moreover, such documents as well as our annual report on Form 20 F, once available, may be viewed at our principal or branch office by any of our shareholders making such a request and are also delivered to any shareholder making a request for delivery. Under Korean law, we are not required to prepare quarterly or interim reports. We furnish our quarterly financial statements prepared in accordance with IFRS on Form 6 K with the SEC. Under Korean law, we are not required to solicit proxies nor provide proxy statements in connection with any general meeting of shareholders. For shareholders holding only our common shares, we do not solicit proxies from nor provide proxy statements to such shareholders. For holders of our ADSs, our depositary, Citibank, N.A. provides proxy statements to, and solicits proxies from, such holders, which proxies will be voted by the Korea Securities Depository, or the "KSD," on behalf of the holders at the general meeting of shareholders.

In addition, as a controlled company, as GungHo controls 59.3% of our outstanding voting power as of the date hereof, Gravity is exempt from certain corporate governance rules that apply to non-controlled companies. NASDAQ's corporate governance practice rules provide that a controlled company is exempt from certain corporate governance requirements under NASDAQ Stock Market Rule 5615, subject to certain exceptions. As a controlled company, we are not required to have a majority of our Board of Directors be independent, nor are we required to have a compensation committee



or independent director oversight of director nominations which meet the requirements set forth in the NASDAQ Stock Market Rules. We are relying on these exemptions as a controlled company.

## BOARD OF DIRECTORS

Our Board of Directors has the ultimate responsibility for the administration of our affairs. Our articles of incorporation, as currently in effect, provide for a Board of Directors comprised of not less than three directors and also provide for an audit committee, a compensation committee and a director nomination committee. We currently have seven members serving as members of our Board of Directors. The directors are elected at a shareholders' meeting by a majority vote of the shareholders present or represented, which majority is not less than one fourth of all issued and outstanding shares with voting rights, so long as not less than one third of all issued and outstanding shares with voting rights are present at the shareholders' meeting.

Each of our directors is elected for a term of one year, which may be extended until the close of the annual general meeting of shareholders convened in respect to the last fiscal year of such director's term. However, directors may serve any number of consecutive terms and may be removed from office at any time by a special resolution adopted at a general meeting of shareholders, which requires approval by the holders of at least two thirds of the voting shares present or represented at the meeting and at least one third of our total voting shares then issued and outstanding.

The Board of Directors elects one or more representative directors from its members. A representative director is authorized to represent and act on behalf of our company and has the authority to bind our company. We may have (i) one sole representative director, (ii) two or more co-representative directors or (iii) two or more joint representative directors. The powers and authorities of a sole representative director and any co-representative directors are exactly the same while the only distinction for joint representative directors is that they must act jointly (i.e., all of the joint representative directors must act together in order to bind the Company while co-representative directors may act independently). Currently our Board of Directors has elected Hyun Chul Park as our Representative Director. Under the Korean Commercial Code and our articles of incorporation, any director with special interest in an agenda of a board meeting may not exercise his voting rights in such board meeting. We do not have service contracts with any of our directors which provide for benefits upon termination.

Our Board of Directors has determined that Messrs. Doo Hyun Ryu, Jung Yoo and Yong Seon Kwon are "independent directors" within the meaning of NASDAQ Stock Market Rule 5605(a)(2).

## COMMITTEES OF THE BOARD OF DIRECTORS

Under our articles of incorporation, we currently have three committees that serve under our Board of Directors:

- the audit committee;
- the director nomination committee; and
- the compensation committee.

### Audit committee

Our audit committee was established in December 2004. The audit committee currently consists of the following directors: Doo Hyun Ryu, Yong Seon Kwon and Jung Yoo. All of the audit committee members are "independent directors" within the meaning of NASDAQ Stock Market Rule 5605(a)(2) and meet the criteria for independence as set forth in Rule 10A-3(b)(1) of the Exchange Act. All of our independent directors are financially literate and have accounting or related financial management expertise. Our Board of Directors has determined that Yong Seon Kwon is an "audit committee financial expert," as such term is defined by the regulations of the SEC issued pursuant to Section 407 of the Sarbanes-Oxley Act. The audit committee is responsible for examining internal transactions and potential conflicts of interest and reviewing accounting and other relevant matters. Under the Korean Commercial Code, if a company establishes an audit committee, such company is not permitted to have a statutory auditor. The

committee is currently chaired by Doo Hyun Ryu.

#### Director nomination committee

The director nomination committee consists of the following three directors: Kazuki Morishita, Kazuya Sakai and Jung Yoo. One of the three members, Jung Yoo, is an “independent director” within the meaning of NASDAQ Stock Market

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Rule 5605(a)(2). This committee is responsible for recommending and nominating candidates for our director positions. The committee is currently chaired by Kazuki Morishita.

#### Compensation committee

The compensation committee consists of the following three directors: Kazuya Sakai, Kazuki Morishita and Doo Hyun Ryu. One of the three members, Doo Hyun Ryu, is an independent director within the meaning of NASDAQ Stock Market Rule 5605(a)(2). This committee is responsible for reviewing and approving the management's evaluation and compensation programs. The committee is currently chaired by Kazuya Sakai.

#### ITEM 6.D. EMPLOYEES

As of December 31, 2018, we had 249 full time employees(not including employees of our subsidiaries). The total number of employees increased over the course of 2018 mainly due to an increase of in-house development of new game titles.

The following table sets forth the number of our employees by department as of the dates indicated:

|                              | December 31, |      |      |
|------------------------------|--------------|------|------|
|                              | 2016         | 2017 | 2018 |
| Senior management            | 8            | 9    | 9    |
| Finance                      | 14           | 16   | 15   |
| Marketing                    | 48           | 77   | 58   |
| Game development and support | 115          | 141  | 167  |
| Total                        | 185          | 243  | 249  |

We do not have a labor union, and none of our employees are covered by collective bargaining agreements. We have a labor management council for such employees in Korea as required under the Act on the Promotion of Workers' Participation and Cooperation in Korea. We believe that we maintain a good working relationship with our employees and we have not experienced any significant labor disputes or work stoppages.

In addition, as of December 31, 2018, our subsidiaries had the number of employees as set forth in the following table:

|                                          | December 31, |        |        |
|------------------------------------------|--------------|--------|--------|
|                                          | 2016         | 2017   | 2018   |
| Gravity Interactive, Inc. <sup>(1)</sup> | 27{3}        | 33{3}  | 35{3}  |
| NeoCyon, Inc. <sup>(1)</sup>             | 140{9}       | 200{9} | 264{4} |
| Gravity Games Corporation <sup>(1)</sup> | 1{1}         | 1{1}   | —      |
| Gravity Entertainment Corporation        | —            | —      | 7{1}   |
| Gravity Communications Co., Ltd.         | —            | —      | 32{3}  |
| Total                                    | 168          | 234    | 338    |

Note:

(1) The number in { } is the number of employees (who are included in the total number) seconded from Gravity Co., Ltd. to the relevant subsidiary.

None of the employees of Gravity Interactive, NeoCyon, Gravity Games, Gravity Entertainment or Gravity Communications is represented by a labor union or covered by a collective bargaining agreement.

We have entered into a standard annual employment contract with most of our officers, managers and employees. These contracts include a covenant that prohibits the relevant officer, manager or employee from engaging in any activities that compete with our business during, and for six months after, the period of their employment with our company.

Under the severance payment plan that we have established in accordance with the Employee Retirement Benefit Security Act, employees in Korea with more than one year of service with us are entitled to receive a lump sum payment upon voluntary or involuntary termination of their employment. The amount of the benefit equals the employee's monthly salary, calculated by averaging the employee's daily salary for the three months prior to the date of the employee's departure, multiplied by the number of continuous years of employment. As of December 31, 2018, we provided Won 258 million (US\$232 thousand) to 153 employees as severance payment, being 100% of our severance liability as of such date.

Pursuant to the Korean National Pension Law, we are required to pay 4.5% of each employee's standard monthly income to the National Pension Corporation. Our employees are also required to pay 4.5% of their standard monthly income to the National Pension Corporation each month. Our employees are entitled to receive an annuity in the event they lose, in whole or in part, their wage earning capability. Our employees can receive pension payments upon making a claim when they reach a certain age or lose all or part of their income due to disability, such as by receiving age pension payments when they reach the age of 60 after being registered for the national pension plan for at least 10 years and disability pension payments when a disease or illness acquired during the time they were registered for the national pension plan leaves a disability even after the disease or illness that originally caused the disability is cured. The total amount of contributions we, including our subsidiaries in Korea, made to the National Pension Corporation in 2017 and 2018 was Won 557 million and Won 727 million (US\$653 thousand), respectively.

#### ITEM 6.E. SHARE OWNERSHIP

None of our current directors or officers beneficially owns our common shares.

##### Stock option plan

Under our articles of incorporation, we may grant options for the purchase of our shares to certain qualified directors, officers and employees. Set forth below are the details of our stock option plan as currently contained in our articles of incorporation:

Stock options may be granted to our officers and employees who have contributed or are qualified to contribute to our establishment, management and technical innovation. Notwithstanding the foregoing, no stock options may be granted to any person who is (i) our largest shareholder, (ii) a holder of 10% or more of our shares outstanding, (iii) certain specially related persons of the person set forth in (i) and (ii) above, or (iv) a shareholder who would own 10% or more of our shares upon exercise of options granted under the stock option plan; provided, however, that those who fall under the specially related persons upon becoming one of the officers of the concerned company (including part time officers of the affiliated company) shall be excluded from item (iii) above;

Stock options may be granted by a special resolution of our shareholders with the aggregate number of shares issuable not to exceed 10% of the total number of our then issued and outstanding common shares;

• Upon exercise of stock options, we deliver our common shares or pay in cash the difference between the market price of our shares and the option exercise price;

• The number of officers and employees subject to grant of stock options shall not exceed 90% of the currently employed officers and employees, and the stock option granted to an officer or an employee shall not exceed 10% of the total issued and outstanding shares;

Stock options granted under the stock option plan, in case new shares are issued, have a minimum exercise price equal to the higher of (i) the market price of our shares calculated pursuant to the method under the Inheritance and Gift Tax Law and (ii) the par value of our shares, and in other cases, have a minimum exercise price equal to or higher than the market price of our shares calculated pursuant to the method under the Inheritance and Gift Tax Law; Stock options may be exercisable by a person who is granted a stock option and has served the Company for two or more years from the date of the special resolution of shareholders granting such stock options; provided, that stock options may be exercised by, or on behalf of, a person that dies, retires or resigns due to any cause not attributable to himself/herself before the completion of such two year period; Stock options can vest after two years from the stock option grant date and can be exercised up to five years from the vesting date; and Stock options may be cancelled by a resolution of our Board of Directors if (i) the officer or employee who holds the option voluntarily retires after being granted stock options, (ii) the officer or employee who holds the option causes material damage to us by willful misconduct or negligence, (iii) we are unable to deliver our shares or pay the prescribed amount due to bankruptcy or dissolution, or (iv) the occurrence of any cause for cancellation of stock options specified in the stock option agreement.

Each stock option confers the right to the grantee to purchase one share of our common stock at the exercise price. On December 24, 2004, our shareholders approved the implementation of our employee stock option plan and the granting of stock options under this plan to our directors, officers and employees. All the stock options granted on December 24, 2004 have expired. There are no stock options exercisable as of December 31, 2018.

## ITEM 7. MAJOR SHAREHOLDERS AND RELATED PARTY TRANSACTIONS

### ITEM 7.A. MAJOR SHAREHOLDERS

The table below sets forth information known to us with respect to the beneficial ownership of our common shares as of April 19, 2019, by each person known to us to own beneficially 5% or more of our common shares based on 6,948,900 common shares outstanding. None of our common shares entitles the holder to any preferential voting rights. Beneficial ownership is determined in accordance with the Exchange Act and the rules and regulations promulgated thereunder and includes the power to direct the voting or the disposition of the securities or to receive the economic benefit of the ownership of the securities.

| Name                              | Number of<br>Shares   | Percentage<br>Beneficially |   |
|-----------------------------------|-----------------------|----------------------------|---|
|                                   | Beneficially<br>Owned | Owned                      | % |
| GungHo Online Entertainment, Inc. | 4,121,737             | 59.3                       | % |

To the best of our knowledge, as of December 31, 2018, approximately 47.3% of our common shares was held in the United States (in the form of ADSs). Also to the best of our knowledge, we had approximately 1,234 beneficial holders of our shares (in the form of ADSs) in the United States as of December 31, 2018. As of the date hereof, our largest shareholder GungHo beneficially owns 59.3% of the voting power of our common shares.

### ITEM 7.B. RELATED PARTY TRANSACTIONS

As further disclosed in Note 22 of to our consolidated financial statements included elsewhere in this Annual Report, we engage in transactions with our related parties, including our largest shareholder, from time to time, involving the sale of our products to, and the purchase of products and services from, such related parties.



Relationship with GungHo Online Entertainment, Inc.

On April 1, 2008, GungHo acquired 3,640,619 shares of our common stock, which was approximately 52.4% of our total shares. On June 23, 2008 and June 24, 2008, GungHo acquired our ADSs representing 450,554.25 and 30,565.25 shares of the Company, respectively. As of April 19, 2019, GungHo beneficially owns approximately 4,121,737 shares of the Company's common stock, constituting approximately 59.3% of the total issued and outstanding common shares. See ITEM 3.D. "RISK FACTORS—RISKS RELATING TO OUR COMPANY STRUCTURE—GungHo, the licensee of our games in Japan, our principal market in terms of revenues, is our majority shareholder, which gives them control of our board of directors."

In July 2002, we entered into an agreement with GungHo, formerly known as OnSale, Inc., for the service and distribution of Ragnarok Online in Japan, which was renewed in September 2004, August 2006, September 2009, September 2012, September 2015 and September 2017.

In August 2012, we entered into a co-development agreement with GungHo to develop Ragnarok Odyssey Ace for the PlayStation Vita platform, which was amended in January 2013, June 2013 and February 2017.

In May 2010, we entered into a license with GungHo to commercialize the merchandise business using Ragnarok Online game characters within Japan, which was amended in May 2012, May 2014, May 2016 and September 2017.

Mr. Hyun Chul Park, our Chief Executive Officer, Mr. Yoshinori Kitamura, our Chairman of the Board of Directors and Chief Operating Officer, Mr. Kazuki Morishita, our Executive Director, and Mr. Kazuya Sakai, our Executive Director, have been General Manager, Director and Executive General Manager, President and Chief Executive Officer, and Chief Financial Officer and Director of GungHo, respectively.

ITEM 7.C. INTERESTS OF EXPERTS AND COUNSEL

Not applicable.

ITEM 8. FINANCIAL INFORMATION

ITEM 8.A. CONSOLIDATED STATEMENTS AND OTHER FINANCIAL INFORMATION

FINANCIAL STATEMENTS

All relevant financial statements are included in ITEM 18. "FINANCIAL STATEMENTS."

LEGAL PROCEEDINGS

As of the date hereof, we are not involved in any lawsuit or other proceeding the outcome of which we believe may, individually or taken as whole, have a material adverse effect on our business, results of operations or financial condition.

## DIVIDEND POLICY

Since our inception, we have not declared or paid any dividends on our common shares. Any decision to pay dividends in the future will be subject to a number of factors, including cash requirements for future capital expenditures and investments, and other factors our Board of Directors may deem relevant. We have no intention to pay dividends in the near future. Consequently, we cannot give any assurance that any dividends may be declared and paid in the future. Holders of outstanding common shares on a dividend record date will be entitled, subject to applicable withholding taxes, to the full dividend declared without regard to the date of issuance of the common shares or any subsequent transfer of the common shares. Payment of annual dividends in respect of a particular year, if any, will be made in the following year after approval by our shareholders at the annual general meeting of shareholders or, if (i) an external auditor gives an unqualified opinion to the financial statements and (ii) all members of the audit committee unanimously agree, after approval by the Board of Directors, and payment of interim dividends, if any, will be made in the same year after approval by our Board of Directors, in each case, subject to certain provisions of our articles of incorporation and the Korean Commercial Code. All dividends may be paid in cash, by shares or by other properties (in kind). See ITEM 10.B. “MEMORANDUM AND ARTICLES OF INCORPORATION—Dividends.”

Subject to the terms of the deposit agreement for the ADSs, you will be entitled to receive dividends on common shares represented by ADSs to the same extent as the holders of common shares, less the fees and expenses payable under the deposit agreement in respect of, and any Korean tax applicable to, such dividends. See ITEM 10.E. “TAXATION—KOREAN TAXATION.” The depositary will generally convert the Won it receives into U.S. dollars and distribute the U.S. dollar amounts to you. For a description of the U.S. federal income tax consequences of dividends paid to our shareholders, see ITEM 10.E. “TAXATION—MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS.”

## ITEM 8.B. SIGNIFICANT CHANGES

We have not experienced any significant changes since the date of our audited consolidated financial statements included in this Annual Report.

## ITEM 9. THE OFFER AND LISTING

### ITEM 9.A. OFFER AND LISTING DETAILS

#### Common Stock

Our common shares are not listed on any stock exchange or organized trading market, including in Korea. There is no public market for our common shares, although a small number of our common shares are traded in off market transactions involving private sales primarily in Korea.

#### American Depositary Shares

Following our initial public offering on February 8, 2005, the ADSs were listed on the NASDAQ Stock Market’s the NASDAQ Global Market, formerly the NASDAQ National Market, under the symbol “GRVY.” Other than from November 26, 2014 through August 27, 2018 (during which our ADSs were traded on the NASDAQ Capital Market), our ADSs have been traded on the NASDAQ Global Market under the same symbol. On May 11, 2015, we effected a change of our ADS to common shares ratio from four ADSs to one common share (4:1) to one ADS to two common shares (1:2), which had the effect of a 1-for-8 reverse stock split of our ADSs. On August 28, 2018, we effected a further change of our ADS to common shares ratio from one ADS to two common shares (1:2) to one ADS to one common share (1:1), which had the effect of a 2-for-1 stock split of our ADSs.

As of April 19, 2019, 3,290,703 ADSs representing 3,290,703 shares of our common stock were outstanding.

ITEM 9.B. PLAN OF DISTRIBUTION

Not applicable.

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ITEM 9.C. MARKETS

See ITEM 9.A. "OFFER AND LISTING DETAILS."

ITEM 9.D. SELLING SHAREHOLDERS

Not applicable.

ITEM 9.E. DILUTION

Not applicable.

ITEM 9.F. EXPENSES OF THE ISSUE

Not applicable.

ITEM 10. ADDITIONAL INFORMATION

ITEM 10.A. SHARE CAPITAL

Not applicable.

ITEM 10.B. MEMORANDUM AND ARTICLES OF INCORPORATION

The section below provides summary information relating to the material terms of our capital stock and our articles of incorporation. It also includes a brief summary of certain provisions of the Korean Commercial Code and related Korean law, all as currently in effect.

General

We were incorporated as a company with limited liability under Korean law on April 4, 2000 under the legal name of Gravity Co., Ltd.

Objects and Purposes

Under Article 2 of our articles of incorporation, our purpose is to engage in the following businesses: (i) consulting regarding software and development and distribution of software; (ii) software and compact disc development and sale; (iii) development of info-communications related software; (iv) production, development, distribution, sale, and licensing of and consulting regarding digital contents including game software; (v) online network game service; (vi) development of software for application packages; (vii) computer program development and sale; (viii) software import and export; (ix) electronic transactions; (x) character merchandising; (xi) animation; (xii) real estate lease; (xiii) rest area restaurant business; (xiv) media-related business; (xv) printing and publication; (xvi) production and distribution of audio and visual records; and (xvii) all businesses auxiliary to the above.

## Director

Our articles of incorporation prohibit any of our directors from exercising his or her voting right in respect of any interested transactions. The amount of compensation to be provided to our directors is subject to the approval of our shareholders at a general meeting. Our articles of incorporation are silent on the borrowing powers exercisable by directors and do not prescribe any age limit for directors. Directors are appointed through the general meeting of shareholders and an affirmative vote of the majority of the shares represented at the meeting and at least one-fourth of the total issued and outstanding shares is required for a director's appointment.

## Dividends

We may pay dividends to our shareholders in proportion to the number of shares owned by each shareholder. The common shares represented by the ADSs have the same dividend rights as our other common shares.

In general, we may declare dividends at the annual general meeting of shareholders which is held within three months after the end of each fiscal year. However, in some cases, we may also declare dividends at a meeting of the Board of Directors, if (i) an external auditor gives an unqualified opinion to our financial statements for such fiscal year and (ii) all members of the audit committee unanimously agree, after approval by the Board of Directors. In addition, we may declare any interim dividends at a meeting of the Board of Directors. All dividends may be paid in cash, by shares or by other properties (in kind). However, a dividend in shares must be distributed at par value, and dividends in shares may not exceed one half of the annual dividends.

Under the Korean Commercial Code, we may pay an annual dividend only out of the excess of our net assets, on a non consolidated basis, over the sum of (i) our stated capital, (ii) the total amount of our capital surplus reserve and earned surplus reserve accumulated up to the end of the relevant dividend period, (iii) the earned surplus reserve to be set aside for the annual dividend period and (iv) unrealized gains (the amount of net assets stated on the balance sheet increased as a result of an evaluation of the assets and liabilities in accordance with IFRS, which is not offset by unrealized losses).

We may not pay an annual dividend unless we have set aside as earned surplus reserve an amount equal to at least 10% of the cash portion of the annual dividend, or unless we have an accumulated earned surplus reserve of not less than one half of our stated capital. We may not use our legal reserves to pay cash dividends but may transfer amounts from our legal reserves to capital stock or use our legal reserves to reduce an accumulated deficit. If our legal reserves exceed 1.5 times our stated capital, the excess legal reserves may be reduced by a majority vote of the shareholders.

In addition to annual dividends, under the Korean Commercial Code and our articles of incorporation, we may pay interim dividends once during each fiscal year in case we earn more retained earnings as of the end of the first half of such year than the retained earnings not disposed of at the time of the general shareholder meeting with respect to the immediately preceding fiscal year. The decision to pay interim dividends shall be made by a resolution of the Board of Directors and is not subject to shareholder approval. Any interim dividends must be paid to the shareholders of record as of June 30 of the relevant fiscal year. We may distribute the interim dividend in cash, in shares or in other form of valuable property (in kind).

The total amount of interim dividends payable in a fiscal year shall not be more than the net assets on the balance sheet of the immediately preceding fiscal year, after deducting (i) our capital in the immediately preceding fiscal year, (ii) the aggregate amount of our capital reserves and earned surplus reserves accumulated up to the immediately preceding fiscal year, (iii) the amount relating to the immediately preceding fiscal term which is confirmed at the annual general meeting of shareholders to be distributed as profit or paid, (iv) the amount of voluntary reserves accumulated up to the immediately preceding fiscal year for special purposes pursuant to our articles of incorporation or a resolution by our shareholders, (v) the amount of earned surplus reserves that should be set aside for the current fiscal year following the interim dividend payment and (vi) unrealized gains (the amount of net assets stated on the

balance sheet increased as a result of an evaluation of the assets and liabilities in accordance with IFRS). Furthermore, the rate of interim dividends for non voting preferred shares must be the same as that for our common shares.

We have no obligation to pay any dividend unclaimed for five years from the dividend payment date.

## Distribution of free shares

In addition to paying dividends in shares out of our retained or current earnings, we may also distribute to our shareholders an amount transferred from our capital surplus or earned surplus reserve to our stated capital in the form of bonus shares issued free of charge, or free shares. We must distribute such free shares to all our shareholders in proportion to their existing shareholdings. Since our inception, we have not distributed any free shares. We currently have no intention to make such distribution in the near future.

## Preemptive rights and issuance of additional shares

We may issue authorized but unissued shares from time to time, unless otherwise provided for in the Korean Commercial Code, on such terms as our Board of Directors may determine. We must offer new shares on uniform terms to all shareholders who have preemptive rights and are listed on our shareholders' register as of the relevant record date.

We may issue new shares pursuant to a board resolution to persons other than existing shareholders, who in these circumstances will not have preemptive rights, if the new shares are issued:

- through a general public offering, of no more than 50% of the total number of issued and outstanding shares;
- to the members of the employee stock ownership association;
- upon exercise of a stock option in accordance with our articles of incorporation;
- in the form of depositary receipts of no more than 50% of the total number of issued and outstanding shares;
- to induce foreign direct investment necessary for business in accordance with the Foreign Investment Promotion Act of no more than 50% of the total number of issued and outstanding shares;
- to the extent not exceeding 50% of the total number of issued and outstanding shares, to domestic or overseas financial institutions, corporations or individuals for the purpose of raising funds on an emergency basis;
- to certain companies under a joint venture arrangement with us; or
- in a public offering or the new shares are underwritten by underwriters for the purpose of listing such shares on any stock exchange, to the extent not exceeding 50% of the total number of issued and outstanding shares, provided that, if new shares are allocated to persons other than existing shareholders, the company is required to provide notice to shareholders or make a public notice at least two weeks prior to the payment date of the subscription amount for such new shares.

We must give public notice of preemptive rights regarding new shares and their transferability at least two weeks before the relevant record date. We will notify the shareholders who are entitled to subscribe for newly issued shares of the deadline for subscription at least two weeks prior to such deadline. If a shareholder fails to subscribe by the deadline, the shareholder's preemptive rights lapse. Our Board of Directors may determine how to distribute fractional shares or shares for which preemptive rights have not been exercised.

In the case of ADS holders, the depositary will be treated as the shareholder entitled to preemptive rights.

## General meeting of shareholders

We hold the annual general meeting of shareholders within three months after the end of each fiscal year. Subject to a board resolution or court approval, we may hold an extraordinary general meeting of shareholders:

- as necessary;
- at the request of shareholders holding an aggregate of 3% or more of our outstanding shares; or
- at the request of our audit committee.

We must give shareholders written notice or electronic document setting out the date, place and agenda of the meeting at least two weeks prior to the general meeting of shareholders. The agenda of the general meeting of shareholders is determined at the meeting of the Board of Directors. In addition, a shareholder holding an aggregate of 3% or more of the outstanding shares may propose an agenda for the general meeting of shareholders. Such proposal should be made in writing at least six weeks prior to the meeting. The Board of Directors may decline such proposal if it is in violation of the relevant laws and regulations or our articles of incorporation. Shareholders not on the shareholders' register as of the record date are not entitled to receive notice of the general meeting of shareholders or attend or vote at the meeting. Holders of preferred shares, unless enfranchised, are not entitled to receive notice of or vote at the general meeting of shareholders.

A shareholder holding an aggregate of 1% or more of the outstanding shares may, prior to the shareholders' meeting, request the court to appoint an inspector to examine the appropriateness of the meeting notice process and voting method.

The chairman of the shareholders' meeting shall be appointed by the Board of Directors, and if the person determined by the Board of Directors cannot serve as chairman, the representative director shall serve as chairman. If the representative director cannot serve as chairman, then the vice president, senior executive director or executive director shall serve as chairman, in that order. If a general meeting of shareholders is proposed by a shareholder or shareholders holding an aggregate of not less than 3% of the outstanding shares, the court may approve such general meeting and may also appoint the chairman of such shareholders' meeting upon request by the requesting parties or at its own discretion.

Our shareholders' meetings are held in Seoul, Korea or other nearby areas as deemed necessary.

#### Voting rights

Holders of our common shares are entitled to one vote for each common share. However, common shares held by us (i.e. treasury shares) or by any corporate entity in which we have, directly or indirectly, greater than a 10% interest, do not have voting rights. Unless the articles of incorporation explicitly state otherwise, the Korean Commercial Code permits cumulative voting pursuant to which each common share entitles the holder thereof to multiple voting rights equal to the number of directors to be elected at such time. A holder of common shares may exercise all voting rights with respect to his or her shares cumulatively to elect one director. However, our shareholders have decided not to adopt cumulative voting.

Our shareholders may adopt resolutions at a general meeting by an affirmative majority vote of the voting shares present or represented at the meeting, where the affirmative votes also represent at least one third of our total voting shares then issued and outstanding. However, under the Korean Commercial Code and our articles of incorporation, the following matters require approval by the holders of at least two thirds of the voting shares present or represented at the meeting, where the affirmative votes also represent at least one third of our total voting shares then issued and outstanding:

- amending our articles of incorporation;
- removing a director;
- effecting a capital reduction (except any reduction in capital to make up for deficits);
- effecting any dissolution, merger or consolidation with respect to us;
- transferring all or any significant part of our business;
  - acquiring all of the business of any other company or a part of the business of any other company having a material effect on our business (the "material effect" qualifier is applied to the acquisition of both the whole and partial business of any other company);
- issuing new shares at a price below the par value; or
- any other matters for which such resolution is required under relevant laws and regulations.



In general, holders of non-voting shares are not entitled to vote on any resolution or receive notice of any general meeting of shareholders. However, in the case of amendments to our articles of incorporation, any merger or consolidation, capital reductions or in some other cases that affect the rights or interests of the preferred shares, approval of the holders of such class of shares is required. We must obtain the approval, by a resolution, of holders of at least two thirds of the preferred shares present or represented at a class meeting of the holders of such class of shares, where the affirmative votes also represent at least one third of the total issued and outstanding shares of such class. In addition, the Korean Commercial Code provides that a company's articles of incorporation may prescribe conditions for enfranchisement of non-voting shares. For example, if we are unable to pay dividends on preferred shares as provided in our articles of incorporation, the holders of preferred shares may become enfranchised and may be entitled to exercise voting rights until the dividends are paid. The holders of enfranchised preferred shares have the same rights as holders of voting shares to request, receive notice of, attend and vote at a general meeting of shareholders.

Shareholders may exercise their voting rights by proxy. Under our articles of incorporation, the person exercising the proxy does not have to be a shareholder. A person with a proxy must present a document evidencing its power of attorney in order to exercise voting rights.

Holders of ADSs will exercise their voting rights through the ADS depositary. Subject to the provisions of the deposit agreement, holders of ADSs will be entitled to instruct the depositary how to vote the common shares underlying their ADSs.

#### Rights of dissenting shareholders

In some limited circumstances, including the transfer of all or any part of our business having a material effect on our business and our merger or consolidation with another company except a small scale merger (as prescribed under Korean law) that leaves us as the surviving company, dissenting shareholders have the right to require us to purchase their shares. To exercise this right, shareholders must submit to us a written notice of their intention to dissent before the applicable general meeting of shareholders. Within 20 days after the relevant resolution is passed, the dissenting shareholders must request us in writing to purchase their shares. We are obligated to purchase the shares of dissenting shareholders within two months after receiving such request. The purchase price for the shares is required to be determined through negotiations between the dissenting shareholders and us. If an agreement is not attained within 30 days since the receipt of the request, we or the shareholder requesting the purchase of shares may request the court to determine the purchase price. Holders of ADSs will not be able to exercise dissenters' rights unless they withdraw the underlying common shares and become our direct shareholders.

#### Register of shareholders and record dates

Our transfer agent, Hana Bank, maintains the register of our shareholders at its office in Seoul, Korea. It registers transfers of shares on the register of shareholders upon presentation of the share certificates.

The record date for annual dividends is December 31 of each year. For the purpose of determining shareholders entitled to annual dividends, the register of shareholders will be closed for the period from January 1 to January 31 of each year. Further, for the purpose of determining the shareholders entitled to some other rights pertaining to the shares, we may, on at least two weeks' public notice, set a record date and/or close the register of shareholders for not more than three months. The trading of shares and the delivery of share certificates may continue while the register of shareholders is closed.

## Annual report

At least one week before the annual general meeting of shareholders, we must make our annual business report, auditor's report and audited consolidated financial statements available for inspection at our principal office and at all of our branch offices. In addition, copies of such reports, financial statements and any resolutions adopted at the general meeting of shareholders will be available to our shareholders. Under the Korean Commercial Code and the Act on External Audit of Stock Companies, we are required to prepare non consolidated and consolidated financial statements. In addition, the non consolidated and consolidated financial statements are required to be approved at our shareholders' meeting. However, the Board of Directors may, without a shareholders' meeting, approve the non consolidated and consolidated financial statements if (i) an external auditor gives an unqualified opinion to the financial statements and (ii) all members of the audit committee unanimously agree.

## Transfer of shares

Except for the procedural requirements which obligate a non citizen or non resident of Korea to file a report to the relevant government authority of Korea at the time of acquisition or transfer of the Company's shares, there is no restriction on the transfer or sale of our shares applicable to our shareholders or holders of ADSs under our articles of incorporation and relevant laws.

Under the Korean Commercial Code, the transfer of shares is effected by delivery of share certificates. However, to assert shareholders' rights against us, the transferee must have his name and address registered on our register of shareholders. For this purpose, a shareholder is required to file his name, address and seal with our transfer agent. A non Korean shareholder may file a specimen signature in place of a seal, unless he is a citizen of a country with a sealing system similar to that of Korea. In addition, a non resident shareholder must appoint an agent authorized to receive notices on his or her behalf in Korea and file a mailing address in Korea. The above requirement does not apply to the holders of ADSs.

Under current Korean regulations, the KSD, foreign exchange banks, investment traders, investment brokers, collective investment business entities and internationally recognized foreign custodians may act as agents and provide related services for foreign shareholders. Certain foreign exchange controls and securities regulations apply to the transfer of shares by non residents or non Koreans. See ITEM 10.D. "EXCHANGE CONTROLS."

Our transfer agent, Hana Bank, maintains the register of our shareholders at its office located at 72 Gukjegeumyung-ro, Yeongdeungpo-gu, Seoul, Korea. It registers transfers of shares in the register of shareholders on presentation of the share certificates.

## Acquisition of our shares

Within the limitation of distributable profits, we may acquire our own common shares with the prior approval of the general meeting of shareholders (or by a resolution of the Board of Directors) after providing notice or making a public notice to all shareholders of the acquisition of treasury stocks. However, in limited circumstances such as in the case of a merger of our company or an acquisition by us of all of another company's business, or in the case when a shareholder exercises his or her stock option, we may acquire our own common shares without making notice to all shareholders as above.

Under the Korean Commercial Code and our articles of incorporation, our Board of Directors can determine the method by which we dispose of any common shares owned by us. Except in limited circumstances, corporate entities in which we own a 50% or greater equity interest may not acquire our common shares.

Except for the procedural requirements which obligate a non citizen or non resident of Korea to file a report to the relevant government authority of Korea at the time of acquisition or transfer of the Company's shares, there exists no

provision which limits the rights to own our shares or exercise voting rights on our shares due to their status as a non resident or non Korean under our articles of incorporation and applicable Korean laws.

#### Liquidation rights

In the event of our liquidation, after payment of all debts, liquidation expenses and taxes, our remaining assets will be distributed among shareholders in proportion to their shareholdings.

## Other provisions

Under our articles of incorporation, there exists no provision (i) which may delay or prevent a change in control of us and that is triggered in the event of a merger, acquisition or corporate restructuring, (ii) which requires disclosure of ownership above a certain threshold or (iii) that governs change in capital that is more stringent than required by the applicable laws in Korea.

We may issue bonds by a resolution of the Board of Directors. Our articles of incorporation permit the issuance of convertible bonds and bonds with warrants, but none have been issued.

## ITEM 10.C. MATERIAL CONTRACTS

Since the filing of our annual report on Form 20 F on April 27, 2018, we have not entered into any material contracts other than in the ordinary course of business and as otherwise described in ITEM 4. “INFORMATION ON THE COMPANY” or elsewhere in this Annual Report.

## ITEM 10.D. EXCHANGE CONTROLS

### General

The Foreign Exchange Transaction Law and the Presidential Decree and regulations under such Law and Decree, or the “Foreign Exchange Transaction Laws,” regulate investment in Korean securities by non residents and issuance of securities outside Korea by Korean companies. Under the Foreign Exchange Transaction Laws, if non residents wish to acquire Korean securities, a report must be filed with the president of a foreign exchange bank or the President of Bank of Korea except for certain cases, provided, however, that under the Financial Investment Services and Capital Markets Act, foreigners cannot acquire equity securities issued by certain designated public interest corporations in excess of a fixed limit, and under the Foreign Investment Promotion Act, foreigners are either not allowed or restricted in making an investment in certain industries.

Under the Foreign Exchange Transaction Laws, (i) the Ministry of Strategy and Finance, or the “MOSF,” may temporarily suspend payment, receipt or the whole or part of transactions to which the Foreign Exchange Transaction Laws apply, or impose an obligation to safe keep, deposit or sell means of payment in or to certain Korean governmental agencies or financial institutions, if the Korean government deems that it is inevitable to take such measures, due to the outbreak of natural calamities, wars, conflict of arms or grave and sudden changes in domestic or foreign economic circumstances or other situations equivalent thereto; and (ii) if the Korean government deems that the international balance of payments and international finance are confronted or are likely to be confronted with serious difficulty or the movement of capital between Korea and abroad brings or is likely to bring on serious obstacles in carrying out currency policies, exchange rate policies and other macroeconomic policies, the MOSF may take measures to require any person who intends to perform capital transactions to obtain permission from the MOSF or a person/entity designated by the public notification of the MOSF or to require any person who performs capital transactions to deposit part of the means of payment acquired in such transactions in certain Korean governmental agencies or financial institutions, in each case subject to certain limitations thereunder.

### Filing with the Korean government in connection with the issuance of American Depositary Shares

In order for us to issue common shares represented by ADSs in an amount exceeding US\$30 million, we are required to file a prior report of the issuance with the MOSF through the designated foreign exchange bank. No further Korean governmental approval is necessary for the initial offering and issuance of the ADSs.

Under current Korean laws and regulations, the depositary is required to obtain our prior consent for the number of common shares to be deposited in any given proposed deposit which exceeds the difference between (i) the aggregate

number of common shares deposited by us for the issuance of ADSs (including deposits in connection with the initial and all subsequent offerings of ADSs and stock dividends or other distributions related to these ADSs), and (ii) the number of common shares on deposit with the depositary at the time of such proposed deposit. We have agreed to consent to any deposit so long as the deposit would not violate our articles of incorporation or applicable Korean law, and the total number of our common shares on deposit with the depositary would not exceed the sum of the aggregate number of common shares and any number of additional shares for which the depositary has received our written consent.

Furthermore, prior to making an investment of 10% or more of the outstanding voting shares of a Korean company, foreign investors are generally required under the Foreign Investment Promotion Act to submit a report to the Chairman of the Korea Trade Investment Promotion Agency, or “KOTRA,” (including the head of the Trade Center, branch office and/or office designated by the Chairman of KOTRA) or the president of the foreign exchange bank (including the head of the branch office designated by the president of the foreign exchange bank). Subsequent sales of such shares by foreign investors will also require a prior report to the Chairman of KOTRA or the president of the foreign exchange bank.

Certificates of the shares must be kept in custody with an eligible custodian

Under Korean law, certificates evidencing shares of Korean companies must be kept in custody with an eligible custodian in Korea, which certificates may in turn be required to be deposited with the KSD if they are designated as being eligible for deposit with the KSD. Only the KSD, foreign exchange banks, investment traders, investment brokers, collective investment business entities and internationally recognized foreign custodians are eligible to act as a custodian of shares for a foreign investor. However, a foreign investor may be exempted from complying with the requirement to have the certificates deposited with the KSD with the approval of the Governor of the Financial Supervisory Service in circumstances where such compliance is made impracticable, including cases where such compliance would contravene the laws of the home country of such foreign investor.

A foreign investor may appoint one or more standing proxies from among the KSD, foreign exchange banks, investment traders, investment brokers, collective investment business entities, internationally recognized foreign custodians and the Bank of Korea (only when related to a treasury bond, a treasury bill or a monetary stabilization bond which is or will be acquired by a foreign central bank, an international financial organization or a foreign government), and cannot have any other apart from those standing proxies to represent or act on behalf of them in order to exercise rights in respect of acquired shares, or other matters connected thereto. However, a foreign investor may be exempted from complying with these standing proxy rules with the approval of the Governor of the Financial Supervisory Service in circumstances where such compliance is made impracticable, including cases where such compliance would contravene the laws of the home country of such foreign investor.

#### Restrictions on American Depositary Shares and shares

Once the report to the MOSF is filed in connection with the issuance of ADSs, no further Korean governmental approval is necessary for the sale and purchase of ADSs in the secondary market outside Korea or for the withdrawal of shares underlying ADSs and the delivery inside Korea of shares in connection with such withdrawal. In addition, persons who have acquired shares as a result of the withdrawal of shares underlying the ADSs may exercise their preemptive rights for new shares, participate in free distributions and receive dividends on shares without any further governmental approval.

A foreign investor may receive dividends on the shares and remit the proceeds of the sale of the shares through a foreign currency account and/or a Won account exclusively for stock investments by the foreign investor which are opened at a foreign exchange bank designated by the foreign investor without being subject to any procedural restrictions under the Foreign Exchange Transaction Laws. No approval is required for remittance into Korea and deposit of foreign currency funds in the foreign currency account. Foreign currency funds may be transferred from the foreign currency account at the time the foreign investor is required to place a deposit for, or settle the purchase price of, a stock purchase transaction to a Won account opened at a foreign exchange bank. Funds in the foreign currency account may be remitted abroad without any governmental approval.

Dividends on shares are paid in Won. No Korean governmental approval is required for foreign investors to receive dividends on, or the Won proceeds of the sale of, any such shares to be paid, received and retained in Korea. Dividends paid on, and the Won proceeds of the sale of, any such shares held by a non-resident of Korea must be deposited in his Won account. Funds in the investor's Won account may be transferred to his foreign currency account or withdrawn for local living expenses up to certain limitations. Funds in the investor's Won account may also be used for future investment in shares or for payment of the subscription price of new shares obtained through the exercise of preemptive right.

Investment brokers and investment traders are allowed to open foreign currency accounts with foreign exchange banks exclusively for accommodating foreign investors' securities investments in Korea. Through such accounts, these investment brokers or investment traders may enter into foreign exchange transactions on a limited basis, such as the conversion of foreign currency funds and Won funds, either as a counterparty to or on behalf of foreign investors,

without such investors having to open their own Won and foreign currency accounts with foreign exchange banks.

#### ITEM 10.E. TAXATION

##### KOREAN TAXATION

The following is a discussion of material Korean tax consequences to owners of our ADSs and common shares that are non-resident individuals or non-Korean corporations without a permanent establishment in Korea to which the relevant income is attributable or with which the relevant income is effectively connected. A non-resident individual according to Korean tax laws means an individual who does not have an address or a place of residence in Korea for longer than a period

of 183 days. A non-Korean corporation is a corporation whose headquarters and main office is located overseas and does not have a place of effective management in Korea. The statements regarding Korean tax laws set forth below are based on the laws in force and as interpreted by the Korean taxation authorities as of the date hereof. This discussion is not exhaustive of all possible tax considerations which may apply to a particular investor, and prospective investors are advised to satisfy themselves as to the overall tax consequences of the acquisition, ownership and disposition of our ADSs and common shares, including specifically the tax consequences under Korean law, the laws of the jurisdiction of which they are resident, and any tax treaty between Korea and their country of residence, by consulting their own tax advisors.

#### Dividends on the shares or American Depositary Shares

Under Korean tax laws, the domestic source dividend income of non-resident individuals and non-Korean corporations means any profits or surpluses that are distributed by domestic companies or distributed in Korea. Therefore, dividends that are distributed to non-resident individuals and non-Korean corporations who own common shares of domestic companies are considered to be domestic source dividend income. The dividends provided to the holder of ADSs are also included in the domestic source dividend income as it is no different from dividends that are paid to a holder of common shares in the domestic companies.

With respect to the taxation of domestic source dividend income of a non-resident individual and non-Korean corporation, if there is no tax treaty entered into between Korea and the country of tax residence of the non-resident individual or non-Korean corporation or if the country of tax residence is a tax haven designated by the Commissioner of the National Tax Service of Korea (currently, only Labuan, Malaysia) and has not acquired prior approval of the Commissioner, we will deduct Korean withholding tax from dividends paid to such non-resident individual or non-Korean corporation (whether in cash or in shares) at a rate of 22% (including local income tax). If you are a resident of a country that has entered into a tax treaty with Korea and you are a beneficial owner of the dividends, you may qualify for an exemption or a reduced rate of Korean withholding tax according to the tax treaty. In this connection, if the party with whom the income has been provided exists as a paper company in order to receive the benefits of the tax treaty and there exists a separate beneficiary owner who is the real owner of the income (hereinafter referred to as the “Beneficiary Owner”) that is provided with income from dividends, tax will be withheld at source by applying the tax rate determined in the tax treaty entered into between Korea and the country of tax residence of the Beneficiary Owner. If the country of tax residence of the Beneficiary Owner and Korea has not entered into a tax treaty or in the case that such country is Labuan, Malaysia, tax will be withheld at source at a tax rate of 22% according to the Korean Corporate Tax Law.

Generally, in order to obtain a reduced rate of withholding tax pursuant to an applicable tax treaty, you must submit to us, prior to the dividend payment date, together with the request form to apply for the reduced rate, such evidence of tax residence as the Korean tax authorities may require in order to establish your entitlement to the benefits of the applicable tax treaty. If you hold ADSs, evidence of tax residence may be submitted to us through the depositary. See ITEM 10.E. “TAXATION—KOREAN TAXATION—Tax treaties” below for a discussion on treaty benefits.

In order for the beneficiary of dividends that is a corporation or an individual in Labuan to be qualified for a limited tax rate, the beneficiary must obtain an approval before such dividends are paid by submitting legal evidentiary documents that verify the country of tax residence of the beneficiary to the Commissioner of the National Tax Service of Korea along with a request for prior approval of tax withholding or the beneficiary may submit a request for correction to the responsible director of the tax office within three years of withholding tax at source.

#### Taxation of capital gains

Under Korean tax laws, capital gains from securities are triggered when a non-resident individual or a non-Korean corporation transfers his or its securities. Securities subject to taxation include shares and depositary receipts issued based on such shares and equity interests and all securities issued by domestic corporations. (However, in the case of

bonds, the interests that are accrued during the holding period are taxable as interest income, and therefore, capital gains treatment is not triggered.)

In regards to capital gains tax originating from Korea, if there is no tax treaty entered into between Korea and the country of tax residence of the non resident individual or non Korean corporation or if the country of tax residence is a tax haven designated by the Commissioner of the National Tax Service of Korea (currently, only Labuan, Malaysia) and has not acquired prior approval of the Commissioner, capital gains earned by such non resident individual or non Korean corporation upon the transfer of our common shares or ADSs are subject to Korean withholding tax at the lower of (i) 11% (including local income tax) of the gross proceeds realized and (ii) 22% (including local income tax) of the net realized gains (subject to

the production of satisfactory evidence of the acquisition costs and certain direct transaction costs). However, in most cases where a tax treaty is entered into between Korea and the country of tax residence of the non-resident individual or non-Korean corporation, such non-resident individual or non-Korean corporation is exempt from Korean income taxation under the applicable Korean tax treaty with his or its country of tax residence. In this regard, if the party to whom the capital gains from securities are provided exists as a paper company in order to receive benefits of a tax treaty and there exists a separate Beneficiary Owner that is provided with income from capital gains, tax will be withheld at source by applying the tax rate determined in the tax treaty entered into between Korea and the country of tax residence of the Beneficiary Owner. If the country of tax residence of the Beneficiary Owner and Korea has not entered into a tax treaty or in the case that such country is Labuan, Malaysia, tax will be withheld at source at a tax rate (11% of transfer price or 22% of capital gains, whichever is less) according to the Korean Corporate Tax Law. See ITEM 10.E. “TAXATION—KOREAN TAXATION—Tax treaties” below for a discussion on treaty benefits. Even if you do not qualify for any exemption under a tax treaty, you will not be subject to the foregoing withholding tax on capital gains if you qualify for the relevant Korean domestic tax law exemptions discussed in the following paragraphs.

Aside from the benefits provided in the tax treaties, Korean tax law provides provisions on tax exemptions in regards to capital gains from securities when certain requirements are met. With respect to our common shares, you will not be subject to Korean income taxation on capital gains realized upon the transfer of such common shares, (i) if our common shares are listed on either the Market Division of the Korea Exchange or the KOSDAQ Division of the Korea Exchange, (ii) if shares are transferred through stock market, (iii) if you have no permanent establishment in Korea and (iv) if you did not own or have not owned (together with any shares owned by any entity which you have a certain special relationship with and possibly including the shares represented by the ADSs) 25% or more of our total issued and outstanding shares at any time during the calendar year in which the sale occurs and during the five calendar years prior to the calendar year in which the sale occurs.

Under the tax law amendments effective for capital gains recognized or to be recognized from disposition of ADSs on or after January 1, 2008, ADSs are viewed as shares of stock for capital gains tax purposes. Accordingly, capital gains from sale or disposition of ADSs are taxed (if taxable) as if such gains are from sale or disposition of shares of our common stock. It should be noted that (i) capital gains earned by you (regardless of whether you have a permanent establishment in Korea) from a transfer of ADSs outside Korea will generally be exempt from Korean income taxation by virtue of the Special Tax Treatment Control Law of Korea, or the “STTCL,” provided that the issuance of ADSs is deemed to be an overseas issuance under the STTCL, but (ii) in the case where an owner of the underlying shares of stock transfers ADSs after conversion of the underlying shares into ADSs, the exemption under the STTCL described in (i) will not apply. In the case where an owner of the underlying shares of stock transfers the ADSs after conversion of the underlying shares of stock into ADSs, such person is obligated to file corporate income tax returns and pay tax unless a purchaser or a financial investment company with a brokerage license, as applicable, withholds and pays the tax on capital gains derived from transfer of ADSs, as discussed below.

Generally, to obtain the benefit of an exemption from tax pursuant to a tax treaty, you must submit to the purchaser or the securities company, or through the ADS depository, as the case may be, prior to or at the time of payment, such evidence of your tax residence as the Korean tax authorities may require in support of your claim for treaty benefits. However, in order for the beneficiary of capital gains from securities who is a corporation or an individual in Labuan to be qualified for a limited tax rate, the beneficiary must obtain an approval before such capital gains from securities is realized by submitting legal evidentiary documents that verify the country of tax residence of the beneficiary to the Commissioner of the National Tax Service of Korea along with a request for prior approval of tax withholding or the beneficiary may submit a request for correction to the responsible director of the tax office within three years of withholding tax at source. See ITEM 10.E. “TAXATION—KOREAN TAXATION—Tax treaties” for additional explanation on claiming treaty benefits.

#### Tax treaties

Korea has entered into a number of income tax treaties with other countries (including the United States), which would reduce or exempt Korean withholding tax on dividends on, and capital gains on transfer of, our common shares or ADSs. For example, under the Korea United States income tax treaty, reduced rates of Korean withholding tax of 16.5% or 11.0% (respectively, including local income tax, depending on your shareholding ratio) on dividends and an exemption from Korean withholding tax on capital gains are available to residents of the United States that are beneficial owners of the relevant dividend income or capital gains. However, under Article 17 (Investment or Holding Companies) of the Korea United States income tax treaty, such reduced rates and exemption do not apply if (i) you are a United States corporation, (ii) by reason of any special measures, the tax imposed on you by the United States with respect to such dividends or capital gains is substantially less than the tax generally imposed by the United States on corporate profits, and

(iii) 25% or more of your capital is held of record or is otherwise determined, after consultation between competent authorities of the United States and Korea, to be owned directly or indirectly by one or more persons who are not individual residents of the United States. Also, under Article 16 (Capital Gains) of the Korea United States income tax treaty, the exemption on capital gains does not apply if you are an individual, and (a) you maintain a fixed base in Korea for a period or periods aggregating 183 days or more during the taxable year and your ADSs or common shares giving rise to capital gains are effectively connected with such fixed base or (b) you are present in Korea for a period or periods of 183 days or more during the taxable year.

On the other hand, the International Tax Coordination Law provides that in regard to taxable income, gains, assets, acts or transactions, when the holder and Beneficiary Owner is not the same, the Beneficiary Owner is considered to be the taxpayer who is subject to the applicable tax treaty. If one engages in activities to receive benefits of a tax treaty through having international transactions with a third party indirectly or conducts transactions with more than two parties, such activity is considered to be a direct transaction or a single transaction for which the tax treaty applies. Thus, if a non Korean company or a non resident individual establishes a paper company in a certain country for the purpose of receiving benefits of a tax treaty and tries to unreasonably receive dividends and capital gains from securities pursuant to a tax treaty between a certain country and Korea, the tax treaty that is entered into between the country of the residence of the Beneficiary Owner and Korea shall be applied.

In addition, even if a tax treaty provides for either an exemption from or reduction of the applicable income tax, the company or person paying dividends, interest, royalty or consideration for share purchase to an offshore entity established in a tax haven jurisdiction designated by the MOSF, must initially withhold the applicable tax on such income under the applicable tax law. In such case, by submitting documents that verify the country of tax residence of the Beneficiary Owner within three years from deduction of withholding tax to the public office for tax in Korea in order to request for correction, the difference between the amount of tax to which the tax rate of exemption and restriction in the tax treaty that the Beneficiary Owner qualifies for and the amount of tax that was withheld initially shall be refunded. If, however, the National Tax Service of Korea has granted prior approval upon application for an exemption or reduction of tax pursuant to a relevant tax treaty, such withholding requirement will not apply.

You should inquire for yourself whether you are entitled to the benefit of an income tax treaty with Korea. It is the responsibility of the party claiming the benefits of an income tax treaty in respect of dividend payments or capital gains to submit to us, the purchaser or the securities company, as applicable, a certificate as to its tax residence. In the absence of sufficient proof, we, the purchaser or the securities company, as applicable, must withhold tax at the normal rates. Furthermore, in order for you to claim the benefit of a tax rate reduction or tax exemption on certain Korean source income (e.g., dividends or capital gains) under an applicable tax treaty as the beneficial owner of such Korean source income, Korean tax law requires you (or your agent) to submit an application (in the case for reduced withholding tax rate, an “application for entitlement to reduced tax rate”, and in the case for exemption from withholding tax, an “application for tax exemption”) with a certificate of your tax residency issued by the competent authority of your country of tax residence, subject to certain exceptions (together, the “BO application”). For example, a U.S. resident would be required to provide a Form 6166 as a certificate of tax residency with the application for entitlement to reduced tax rate or the application for tax exemption, as the case may be. Subject to certain exceptions, where the relevant income is paid to an overseas investment vehicle that is not the beneficial owner of such income (an “OIV”), a beneficial owner claiming the benefit of an applicable tax treaty with respect to such income must submit its BO application to such OIV, which in turn must submit an OIV report and a schedule of beneficial owners to the withholding agent prior to the payment date of such income. In the case of a tax exemption application, the withholding agent is required to submit such application (together with the applicable OIV report in the event the income will be paid to an OIV) to the relevant district tax office by the ninth day of the month following the date of the payment of such income.

Inheritance tax and gift tax

Korean inheritance tax is imposed upon (i) all assets (wherever located) of the deceased if he or she was domiciled in Korea at the time of his or her death and (ii) all property located in Korea which passes on death (irrespective of the domicile of the deceased). Gift tax is imposed in similar circumstances to the above (based on the donee's place of domicile in the case of (i) above). The taxes are imposed if the value of the relevant property is above a limit and vary from 10% to 50% at sliding scale rate according to the value of the relevant property and the identity of the parties involved.

Under the Korean inheritance and gift tax laws, shares issued by Korean corporations are deemed located in Korea irrespective of where the share certificates are physically located or by whom they are owned. If the tax authority's

interpretation of treating depositary receipts as the underlying share certificates under the 2004 tax ruling applies in the context of inheritance and gift taxes as well, you may be treated as the owner of the common shares underlying the ADSs.

At present, Korea has not entered into any tax treaty relating to inheritance or gift taxes.

#### Securities transaction tax

The Securities Transaction Tax Act provides that a securities transaction tax shall be imposed on the transfer of share certificates or shares. The scope of taxable share certificates includes, with respect to share certificates transferred on or after January 1, 2011, rights arising from the acquisition of shares, shares prior to the issuance of share certificates, preemptive rights and subscription securities issued by corporations established under special laws (e.g., Agricultural Cooperatives Act) and depositary receipts (issued by depository of equity securities in a country other than the country of issuance, which describes the rights related to the relevant deposited securities) pursuant to the Financial Investment Services and Capital Markets Act. However, with respect to the transfer of share certificates listed in overseas securities markets that are similar to the Korean securities market, such as the New York Stock Exchange or the NASDAQ Stock Market, or the transfer of share certificates to an underwriter in order to list such share certificates on foreign stock exchanges, such transfer is not subject to the securities transaction tax. The said Act provides that the types of share certificates that are subject to the securities transaction tax are share certificates issued by a domestic corporation established according to the Commercial Act or a special act, or share certificates or depositary receipts which are issued by a non-Korean corporation that are listed or registered in the securities market. Therefore, if you transfer common shares in a Korean corporation and the common shares are not listed in the securities market overseas, you will be subject to a securities transaction tax at the rate of 0.5%.

In principle, the securities transaction tax, if applicable, must be paid by the transferor of the shares or the rights to subscribe for such shares. When the transfer is effected through a securities settlement company, such settlement company is generally required to withhold and pay the tax to the tax authorities. When such transfer is made through a securities company only, such securities company is required to withhold and pay the tax. Where the transfer is effected by a non-resident without a permanent establishment in Korea, other than through a securities settlement company or a securities company, the transferee is required to withhold and pay the securities transaction tax.

#### MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS

The following summary describes certain material U.S. federal income tax consequences of the purchase, ownership and disposition of our ADSs and common shares as of the date hereof. The discussion set forth below is applicable to U.S. Holders (as defined below) (i) who are residents of the United States for purposes of the current Convention Between the United States of America and the Republic of Korea for the Avoidance of Double Taxation, as amended (the "Tax Convention"), (ii) whose ADSs or common shares are not, for purposes of the Tax Convention, attributable to a permanent establishment in Korea and (iii) who otherwise qualify for the full benefits of the Tax Convention. Except where noted, it deals only with U.S. Holders that hold our ADSs and common shares as capital assets within the meaning of Section 1221 of the Internal Revenue Code of 1986, as amended (the "Code"). This section does not discuss the tax consequences to any particular holder, nor any tax considerations that may apply to U.S. Holders subject to special tax rules, such as:

- financial institutions;
- regulated investment companies;
- tax-exempt entities;
- grantor trusts;
- certain former citizens or residents of the United States;
- insurance companies;
- brokers, dealers or traders in securities, commodities or currencies;

persons liable for alternative minimum tax;  
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persons (including traders in securities) using a mark to market method of accounting;  
 persons that have a “functional currency” other than the U.S. dollar;  
 persons that own (or are deemed to own) 10% or more (by vote or value) of our equity;  
 persons who hold our common shares or ADSs as a hedge or as part of a straddle with another position, constructive sale, conversion transaction or other integrated transaction; and  
 entities that are treated as partnerships for U.S. federal income tax purposes.

This discussion is based on the Code, Treasury regulations promulgated thereunder, administrative and judicial interpretations thereof and the Tax Convention, all as in effect and available on the date hereof and all of which are subject to change, possibly with retroactive effect, or to different interpretation. This discussion is for general information only and does not address all of the tax considerations that may be relevant to specific U.S. Holders in light of their particular circumstances or to U.S. Holders subject to special treatment under U.S. federal income tax law. This discussion does not address the 3.8% Medicare contribution tax imposed on certain net investment income, any U.S. state or local or non U.S. tax considerations or any U.S. federal estate, gift or alternative minimum tax considerations. The discussion below is based, in part, upon representations made by the depositary to us and assumes that the deposit agreement, and all related agreements, will be performed in accordance with their terms.

Persons considering the purchase, ownership or disposition of our ADSs or common shares should consult their own tax advisors concerning U.S. federal income tax consequences (including the U.S. federal income tax rules applicable to PFICs discussed below) in light of their particular situation as well as any other tax consequences arising under the laws of any taxing jurisdiction.

As used herein, the term “U.S. Holder” means a beneficial holder of our ADSs or common shares that is for U.S. federal income tax purposes:

- an individual citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States, any state thereof or the District of Columbia;
- an estate the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust that:
  - is subject to the primary supervision of a court within the United States and the control of one or more United States persons as described in section 7701(a)(30) of the Code; or
  - has a valid election in effect under applicable U.S. Treasury regulations to be treated as a domestic trust.

If an entity or arrangement treated as a partnership for U.S. federal income tax purposes acquires, owns or disposes of our ADSs or common shares, the U.S. federal income tax treatment of a partner in such partnership generally will depend upon the status of the partner and the activities of the partnership. Such a partner or partnership should consult its own tax advisor as to the U.S. federal income tax consequences of acquiring, owning or disposing of our ADSs and common shares.

## American Depositary Shares

If you hold our ADSs, for U.S. federal income tax purposes, you generally will be treated as the owner of the underlying common shares that are represented by such ADSs. Accordingly, upon the exchange of ADSs for a U.S. Holder’s proportionate interest in our common shares represented by such ADSs, (i) no gain or loss will be recognized to such U.S. Holder, (ii) such U.S. Holder’s tax basis in such common shares will be the same as its tax basis in such ADSs, and (iii) the holding period in such common shares will include the holding period in such ADSs.

The U.S. Treasury has expressed concern that parties to whom ADSs are released before shares are delivered to the depositary or intermediaries in the chain of ownership between holders and the issuer of the security underlying the ADSs, may be taking actions that are inconsistent with the claiming of foreign tax credits by U.S. Holders of ADSs. These actions would also be inconsistent with the claiming of the reduced rate of tax, described below, applicable to dividends received by certain non-corporate U.S. Holders. Accordingly, the creditability of non-U.S. withholding taxes (if any), and the availability of the reduced tax rate for dividends received by certain non-corporate U.S. Holders, each described below, could be affected by actions taken by such parties or intermediaries. For purposes of the discussion below, we assume that intermediaries in the chain of ownership between the holder of an ADS and us are acting consistently with the claim of U.S. foreign tax credits or reduced rate of tax by U.S. Holders.

#### Passive Foreign Investment Companies

In general, we will be a PFIC for U.S. federal income tax purposes for any taxable year in which:

- at least 75% of our gross income is passive income; or
- on average at least 50% of the value (determined on a quarterly basis) of our assets is attributable to assets that produce or are held for the production of passive income.

For this purpose, passive income generally includes dividends, interest, rents and royalties (other than rents and royalties derived in the active conduct of a trade or business and not derived from a related person), gains from commodities and securities transactions and gains from the disposition of assets that produce or are held for the production of passive income. If we own, directly or indirectly, at least 25% by value of the stock of another corporation, we will be treated, for purposes of the PFIC tests, as owning our proportionate share of the other corporation's assets and receiving our proportionate share of the other corporation's income.

Although we believe that we may not have been a PFIC for taxable years 2018 and 2017, we believe that we were a PFIC for taxable years 2008 through 2016, and we may be a PFIC in 2019 and future taxable years. The determination of whether we are a PFIC depends on particular facts and circumstances (such as the valuation of our assets, including goodwill and intangible assets) and may also be affected by the application of the PFIC rules, which are subject to differing interpretations. Such determination is also expected to depend, in part, upon (1) the market price of the ADSs and (2) the composition of our income and assets. In light of the foregoing, no assurance can be provided that we are not currently a PFIC or that we will not become a PFIC in any future taxable year. Furthermore, if we are treated as a PFIC, then one or more of our subsidiaries may also be treated as PFICs.

If we are a PFIC for any taxable year during which you hold our ADSs or common shares, we generally will continue to be treated as a PFIC with respect to you in all succeeding taxable years, regardless of whether we continue to meet the tests described above. Because we believe that we were a PFIC for taxable years 2008 through 2016, if you held ADSs or common shares during any of those taxable years, we would continue to be treated as a PFIC with respect to those ADSs or common shares for all succeeding years in which you hold them. Similarly, if you first acquired ADSs or common shares in any year in which we were not a PFIC and we became a PFIC in a subsequent year, we would be treated as a PFIC with respect to those ADSs or common shares for all succeeding years during which you hold them. You may terminate this continued PFIC status by making a "deemed sale election," as discussed below.

You are urged to consult your own tax advisor concerning the U.S. federal income tax consequences of holding our ADSs or common shares if we are considered a PFIC in any taxable year.

## U.S. Federal Income Tax Treatment of a Shareholder

If we are a PFIC for any taxable year during which you hold our ADSs or common shares, absent certain elections (including the mark-to-market election or qualified electing fund election described below), you generally will be subject to adverse tax consequences (regardless of whether we continue to be classified as a PFIC) with respect to (1) any “excess distribution” received with respect to our ADSs or common shares and (2) any gain recognized from a sale or disposition (including a pledge) of such ADSs or common shares. Distributions received in a taxable year that are greater than 125% of the average annual distributions received during the shorter of the three preceding taxable years and your holding period for our ADSs or common shares will be treated as excess distributions. Under these special tax rules:

- the excess distribution or gain will be allocated ratably over your holding period for our ADSs or common shares;
- the amount allocated to the current taxable year, and any taxable year prior to the first taxable year in which we were a PFIC in your holding period will be treated as ordinary income arising in the current taxable year; and
- the amount allocated to each other year during your holding period in which we were classified as a PFIC will be subject to tax at the highest tax rate in effect for that year and applicable to you, and the interest charge generally applicable to underpayments of tax will be imposed on the resulting tax attributable to each such year.

In addition, if we are a PFIC in the taxable year in which such dividends are paid or in the preceding taxable year, non corporate U.S. Holders will not be eligible for reduced rates of taxation on any dividends received from us.

If we are a PFIC, the tax liability for amounts allocated to years prior to the year of disposition or excess distribution cannot be offset by any net operating losses, and gains (but not losses) recognized on the transfer of the ADSs or common shares cannot be treated as capital gains, even if the ADSs or common shares are held as capital assets.

If we are classified as a PFIC and then cease to be so classified, a U.S. Holder may make an election (a “deemed sale election”) to be treated for U.S. federal income tax purposes as having sold such U.S. Holder’s ADSs or common shares on the last day of our taxable year during which we were a PFIC. A U.S. Holder that makes a deemed sale election would then cease to be treated as owning stock in a PFIC. However, gain recognized as a result of making the deemed sale election would be subject to the adverse rules described above, and loss would not be recognized.

### “Mark-to-market” Election

In certain circumstances, in lieu of being subject to the excess distribution rules discussed above, a shareholder may make an election to include gain on the stock of a PFIC as ordinary income under a mark to market method, provided that such stock is “regularly traded” on a “qualified exchange.” A “qualified exchange” includes a national securities exchange that is registered with the SEC. Generally, a class of stock is considered regularly traded for any calendar year during which such class of stock is traded, other than in de minimis quantities, on at least 15 days during each calendar quarter. Under current law, the mark to market election may be available to U.S. Holders of our ADSs because our ADSs are listed on NASDAQ, which constitutes a qualified exchange as designated in the Code, although there can be no assurance that our ADSs will be “regularly traded” for purposes of the mark to market election. Our common shares are not expected to be listed on a qualified exchange. Accordingly, the mark to market election may not be available for U.S. Holders of our common shares. The remainder of this discussion assumes that the mark to market election will be available for U.S. Holders of our ADSs and will not be available for U.S. Holders of our common shares.

If you make an effective mark to market election, you will be required to include in gross income, as ordinary income, for each taxable year that we are a PFIC an amount equal to the excess of the fair market value of our ADSs that are “marketable stock” at the end of the year over your adjusted tax basis in our ADSs. You will be entitled to deduct, as an ordinary loss in such year an amount equal to the excess of your adjusted tax basis in our ADSs over their fair market value at the end of the year, but only to the extent of the net amount previously included in income as a result of the mark to market election. Your adjusted tax basis in our ADSs will be increased by the amount of any income inclusion

and decreased by the amount of any deductions under the mark to market rules. If you make a mark to market election it will be effective for the taxable year for which the election is made and all subsequent taxable years unless our ADSs are no longer regularly traded on a qualified exchange or the IRS consents to the revocation of the election. You are urged to consult your tax advisor about the availability and consequences of the mark to market election, and whether making the election would be advisable in your particular circumstances.

## “QEF” Election

Alternatively, in certain cases, a U.S. Holder can avoid the interest charge and the other adverse PFIC tax consequences described above by obtaining certain information from the PFIC and electing to treat the PFIC as a “qualified electing fund” under Section 1295 of the Code. However, we do not anticipate that this option will be available to you because we do not intend to provide the information regarding our income that would be necessary to permit you to make this election.

You should consult your tax advisor regarding the application of the foreign tax credit rules to the QEF and mark-to-market regimes described above in the event we are a PFIC.

You are urged to contact your own tax advisor regarding the determination of whether we are a PFIC and the tax consequences of such status.

## U.S. Federal Income Tax Treatment of a Shareholder If We Are Not a PFIC

### Distributions

If you are a U.S. Holder of our ADSs or common shares in a taxable year in which we are a PFIC (and any subsequent taxable year), then this section generally will not apply to you.

As described in “Dividend Policy” above, we do not currently anticipate paying any distributions on our ADSs or common shares in the near future. However, to the extent that there are any distributions made with respect to our ADSs or common shares, the gross amount of distributions on our ADSs or common shares (without deduction for any withholding tax, including amounts withheld as Korean withholding taxes) will be taxable as dividends, to the extent paid out of our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Such income (including withheld taxes) will be includible in your gross income as ordinary income on the day actually or constructively received by you, in the case of our common shares, or by the depositary, in the case of our ADSs. Such dividends will not be eligible for the dividends received deduction allowed to corporations under the Code. With respect to non corporate U.S. Holders, certain dividends received from a “qualified foreign corporation” may be subject to reduced rates of taxation. A qualified foreign corporation includes a foreign corporation (other than a corporation that is a PFIC in the taxable year in which the dividend is paid or the prior year) that is eligible for the benefits of a comprehensive income tax treaty with the United States that the U.S. Treasury Department determines to be satisfactory for these purposes and which includes an exchange of information provision. The U.S. Treasury Department has determined that the current Tax Convention meets these requirements. A foreign corporation (other than a corporation that is a PFIC in the taxable year in which the dividend is paid or the prior year) is also treated as a qualified foreign corporation with respect to dividends paid by that corporation on shares (or ADSs backed by such shares) that are readily tradable on an established securities market in the United States. Our common shares generally will not be considered readily tradable for these purposes. Under the U.S. Treasury Department guidance our ADSs, which are currently listed on NASDAQ, will be considered readily tradable on an established securities market in the United States. There can be no assurance that our ADSs will be considered readily tradable on an established securities market in future years. Non corporate holders that do not meet a minimum holding period requirement during which they are not protected from the risk of loss or that elect to treat the dividend income as “investment income” pursuant to section 163(d)(4) of the Code will not be eligible for the reduced rates of taxation regardless of our status as a qualified foreign corporation.

For U.S. federal income tax purposes, the amount of any dividend paid in Won, including any Korean or other taxes withheld, will be included in your gross income in an amount equal to the U.S. dollar value of the Won received calculated by reference to the exchange rate in effect on the date the dividend is received by you, in the case of our common shares, or by the depositary, in the case of our ADSs, regardless of whether the Won are converted into U.S. dollars. If the Won are converted into U.S. dollars on the date of actual or constructive receipt, your tax basis in those

Won should be equal to their U.S. dollar value on that date and, as a result, you generally should not be required to recognize any foreign exchange gain or loss. If the Won received as a dividend are not converted into U.S. dollars on the date of actual or constructive receipt, you will have a basis in the Won equal to their U.S. dollar value on the date of receipt. Any gain or loss realized on a subsequent conversion or other disposition of the Won generally will be treated as ordinary income or loss and generally will be income or loss from sources within the United States for foreign tax credit limitation purposes.

Subject to certain conditions and limitations, Korean withholding taxes on dividends may be treated as foreign taxes eligible for credit against your U.S. federal income tax liability. Instead of claiming a credit, you may, at your election, deduct such otherwise creditable Korean taxes in computing your taxable income, subject to generally applicable limitations under U.S. federal income tax law. For purposes of calculating the foreign tax credit, dividends paid on our ADSs or common shares generally will be treated as income from sources outside the United States and generally will constitute “passive category income.” Further, in certain circumstances, if you:

- have held our ADSs or common shares for less than a specified minimum period during which you are not protected from risk of loss; or
- are obligated to make payments related to the dividends,

you will not be allowed a foreign tax credit for foreign taxes imposed on dividends paid on our ADSs or common shares.

The rules governing the availability of the foreign tax credit and the limitations on its availability are fact specific and are subject to complex rules. You are urged to consult your tax advisor regarding the availability of the foreign tax credit under your particular circumstances.

To the extent that the gross amount of any distribution on our ADSs or common shares exceeds our current and accumulated earnings and profits, the excess (including the amount of any Korean taxes withheld from the excess) will first be treated as a non-taxable return of (and will reduce, but not below zero) your tax basis in the ADSs or common shares to the extent thereof. Any remaining portion of the distribution will be treated as capital gain (which will be either long-term or short-term capital gain depending upon whether you have held the ADSs or common shares for more than one year). However, we do not expect to maintain calculations of our earnings and profits under U.S. federal income tax principles and, therefore, U.S. Holders should expect to treat the entire amount of any distribution as dividend income. See “—Information reporting and backup withholding” below.

#### Taxation of gains from the sale, exchange, or other disposition of our ADSs or common shares

You generally will recognize capital gain or loss for U.S. federal income tax purposes upon the sale, exchange, or other disposition of our ADSs or common shares in an amount equal to the difference, if any, between the amount realized on the sale, exchange, or other disposition (without reduction for any Korean or other non-U.S. tax withheld from such disposition, and determined in the case of sales or exchanges in currencies other than U.S. dollars by reference to the spot exchange rate in effect on the date of the sale or exchange or, if sold or exchanged on an established securities market and you are a cash basis taxpayer or an electing accrual basis taxpayer, the spot exchange rate in effect on the settlement date) and your adjusted tax basis (as determined in U.S. dollars) in the ADSs or common shares. Such capital gain or loss will be long-term capital gain (taxable at a reduced rate for non-corporate U.S. Holders, including individuals) or loss if, on the date of sale, exchange, or other disposition, you have held the ADSs or common shares for more than one year. The deductibility of capital losses is subject to limitations. You should consult with your own tax advisor regarding the availability of a foreign tax credit or deduction in respect of any Korean tax imposed on a sale or other disposition of ADSs or common shares.

#### Information Reporting Regarding PFICs and Specified Foreign Financial Assets

If we are a PFIC, unless an exception applies, a U.S. Holder would be required to file IRS Form 8621 for each year in which the U.S. Holder owns our ADSs or common shares, including any taxable year in which the U.S. Holder (i) recognizes gain on the direct or indirect disposition of our ADSs or common shares, (ii) receives certain direct or indirect distributions from us, or (iii) makes any of certain reportable elections (including a mark-to-market election). This requirement is in addition to other reporting requirements applicable to ownership in a PFIC. In the event a U.S. Holder does not file such form, the statute of limitations on the assessment and collection of U.S. federal income taxes of such U.S. Holder for the related tax year may be extended.

Owners of “specified foreign financial assets” with an aggregate value in excess of US\$50,000 (and in some cases, a higher threshold) may be required to file an information report with the IRS (on IRS Form 8938) with respect to such assets with their tax returns. “Specified foreign financial assets” include any financial accounts maintained by foreign financial institutions, as well as any of the following, but only if they are held for investment and not held in accounts maintained by financial institutions: (i) stocks and securities issued by non-U.S. persons, (ii) financial instruments and contracts that have

non-U.S. issuers or counterparties and (iii) interests in foreign entities. U.S. Holders are urged to consult their tax advisors regarding the application of this disclosure requirement to their ownership of our stock.

If you are a U.S. Holder, you are urged to consult with your own tax advisor regarding the application of the PFIC and specified foreign financial assets information reporting requirements and related statute of limitations tolling provisions with respect to the ADSs or our common shares.

#### Reportable transactions

Under U.S. Treasury regulations, U.S. Holders that participate in “reportable transactions” (as defined in the Treasury regulations) must attach to their federal income tax returns a disclosure statement on Form 8886. You should consult your own tax advisor as to the possible obligation to file Form 8886 with respect to the sale, exchange or other disposition of any Won received as a dividend from our ADSs or common shares, or as proceeds from the sale of our ADSs or common shares.

#### Information reporting and backup withholding

In general, information reporting will apply to payments of dividends in respect of our ADSs or common shares and the proceeds from the sale, exchange, or redemption of our ADSs or common shares that are paid to you within the United States (and in certain cases, outside the United States), unless you are an exempt recipient, such as certain corporations. Backup withholding may apply to such payments if you fail to provide a taxpayer identification number or certification of exempt status, or otherwise fail to comply with applicable certification requirements. Any amounts withheld under the backup withholding rules will be allowed as a refund or a credit against your U.S. federal income tax liability, provided the required information is furnished to the IRS. Prospective investors should consult their own tax advisors as to their qualification for exemption from backup withholding and the procedure for establishing an exemption.

#### ITEM 10.F. DIVIDENDS AND PAYING AGENTS

Not applicable.

#### ITEM 10.G. STATEMENT BY EXPERTS

Not applicable.

#### ITEM 10.H. DOCUMENTS ON DISPLAY

We have filed this Annual Report, including exhibits, with the SEC. As allowed by the SEC, in ITEM 19. “EXHIBITS” of this Annual Report, we incorporate by reference certain information we filed with the SEC. This means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be part of this Annual Report. You may inspect and copy this Annual Report, including exhibits, and documents that are incorporated by reference in this Annual Report at the Public Reference Room maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1 800 SEC 0330 for further information on the operation of the Public Reference Room. Any filings we make electronically will be available to the public over the Internet at the Web site of the SEC at <http://www.sec.gov>.

#### ITEM 10.I. SUBSIDIARY INFORMATION

Not applicable.

#### ITEM 11. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

In the normal course of our business, we are subject to market risk associated with currency movements on non-Won denominated assets and liabilities and license and royalty revenues and interest rate movements.

#### Foreign currency risk

We conduct our business primarily in Won, which is also our functional and reporting currency. However, we have exposure to some foreign currency exchange rate fluctuations on cash flows from our subsidiary in Taiwan and overseas licensees. The primary foreign currencies to which we are exposed are the NT dollar, the Japanese Yen and the U.S. dollar.

Fluctuations in these exchange rates may affect our subscription revenues or revenues from license fees and royalties and result in exchange losses and increased costs in Won terms.

As of December 31, 2018, of our total financial assets of Won 13,617 million, we had U.S. dollar denominated financial assets of Won 10,761 million, Japanese Yen denominated financial assets of Won 1,053 million, NT dollar denominated financial assets of Won 1,328 million and other denominated financial assets of Won 475 million. As of December 31, 2018, of our total financial liabilities of Won 8,631 million, We had U.S. dollar denominated financial liabilities of Won 8,373 million, NT dollar denominated financial liabilities of Won 241 million and other denominated liabilities of Won 17 million. For example, a hypothetical 10% appreciation of the Won against the NT dollar, Japanese Yen, the U.S. dollar and other foreign currencies, in the aggregate, would reduce our cash flows by Won 499 million.

In 2018, Won 205,956 million of our revenue was derived from currencies other than the Won: primarily the NT dollar, Won 98,210 million; the Japanese Yen, Won 9,767 million; the U.S. dollar, Won 10,572 million; the Thai Baht, Won 43,846 million; the Philippine Peso, Won 15,539 million; and the Indonesia Rupiah, Won 9,359 million. A hypothetical 10% depreciation in the exchange rates of these foreign currencies against the Won in 2018 would have reduced our revenue by Won 18,729 million.

As of April 19, 2019, we had no foreign currency forward contract outstanding. We may in the future enter into hedging transactions in an effort to reduce our exposure to foreign currency exchange risks, but we may not be able to successfully hedge our exposure at all. In addition, our currency exchange losses may be magnified by Korean exchange control regulations that restrict our ability to convert the Won into U.S. dollar, Japanese Yen or Euro under certain emergency circumstances.

#### Interest rate risk

Our exposure to risk for changes in interest rates relates primarily to our investments in short term financial instruments and other investments. Investments in both fixed rate and floating rate interest earning instruments carry some interest rate risk. The fair value of fixed rate securities may fall due to a rise in interest rates, while floating rate securities may produce less income than expected if interest rates fall. We do not believe that we are subject to any material market risk exposure on our short term financial instruments, as they are readily convertible to cash and have short maturities.

#### Credit risk

Our cash and cash equivalents and short term financial instruments are placed with several local financial institutions. Three different financial institutions are holding approximately 32.3%, 25.5% and 12.8% respectively of our cash and cash equivalents and short term financial instruments. We face a potential credit risk that the financial institutions may become insolvent and be unable to repay our principal and interest in a timely manner. While the management believes such financial institutions are of a high credit quality, it is difficult for us to predict the financial condition of the United States or Korean or Taiwanese banking sectors and the financial institutions that manage our cash holdings. We may be materially and adversely affected by any widespread failure in the United States or Korean or Taiwanese banking sectors caused by any economic downturn or volatile financial markets in the future.

The above discussion and the estimated amounts generated from the sensitivity analyses referred to above include “forward looking statements,” which assume for analytical purposes that certain market conditions may occur. Accordingly, such forward looking statements should not be considered projections by us of future events or losses.

## ITEM 12. DESCRIPTION OF SECURITIES OTHER THAN EQUITY SECURITIES

### ITEM 12.A. DEBT SECURITIES

Not applicable.

ITEM 12.B. WARRANTS AND RIGHTS

Not applicable.

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## ITEM 12.C. OTHER SECURITIES

Not applicable.

## ITEM 12.D. AMERICAN DEPOSITARY SHARES

### Fees and Charges Our ADS holders May Have to Pay

On November 5, 2018, the Company changed its depositary from The Bank of New York Mellon to Citibank, N.A. Accordingly, the Company registered 50,000,000 ADSs, with each ADS representing the right to receive one common share of Gravity Co., Ltd.

Citibank, N.A., the depositary of our ADS program, collects its fees for delivery and surrender of ADSs directly from investors depositing shares or surrendering ADSs for the purpose of withdrawal or from intermediaries acting for them. The depositary collects fees for making distributions to investors by deducting those fees from the amounts distributed or by selling a portion of distributable property to pay the fees. The depositary may generally refuse to provide fee attracting services until its fees for those services are paid.

| Service                                                                                                                                                                                                                       | Rate                                                                                                                      | By Whom Paid                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| (1) Issuance of ADSs (e.g., an issuance upon a deposit of Shares, upon a change in the ADS(s)-to-Share(s) ratio, or for any other reason), excluding issuances as a result of distributions described in paragraph (4) below. | Up to U.S. \$5.00 per 100 ADSs (or fraction thereof) issued.                                                              | Person for whom ADSs are issued.                                                    |
| (2) Cancellation of ADSs (e.g., a cancellation of ADSs for Delivery of deposited Shares, upon a change in the ADS(s)-to-Share(s) ratio, or for any other reason).                                                             | Up to U.S. \$5.00 per 100 ADSs (or fraction thereof) cancelled.                                                           | Person for whom ADSs are being cancelled.                                           |
| (3) Distribution of cash dividends or other cash distributions (e.g., upon a sale of rights and other entitlements).                                                                                                          | Up to U.S. \$5.00 per 100 ADSs (or fraction thereof) held.                                                                | Person to whom the distribution is made.                                            |
| (4) Distribution of ADSs pursuant to (i) stock dividends or other free stock distributions, or (ii) an exercise of rights to purchase additional ADSs.                                                                        | Up to U.S. \$5.00 per 100 ADSs (or fraction thereof) held.                                                                | Person to whom the distribution is made.                                            |
| (5) Distribution of securities other than ADSs or rights to purchase additional ADSs (e.g., spin-off shares).                                                                                                                 | Up to U.S. \$5.00 per 100 ADSs (or fraction thereof) held.                                                                | Person to whom the distribution is made.                                            |
| 6) ADS Services.                                                                                                                                                                                                              | Up to U.S. \$5.00 per 100 ADSs (or fraction thereof) held on the applicable record date(s) established by the Depositary. | Person holding ADSs on the applicable record date(s) established by the Depositary. |

### Fees and Other Payments Made by the Depositary to Us

Citibank, N.A., as depositary, may reimburse the Company for certain expenses incurred by the Company in respect of the ADR program established pursuant to the Deposit Agreement, by making available a portion of the ADS fees charged in respect of the ADR program or otherwise, upon such terms and conditions as the Company and the depositary agree from time to time.

## PART II

### ITEM 13. DEFAULTS, DIVIDEND ARREARAGES AND DELINQUENCIES

Not applicable.

### ITEM 14. MATERIAL MODIFICATIONS TO THE RIGHTS OF SECURITY HOLDERS AND USE OF PROCEEDS

Not applicable.

### ITEM 15. CONTROLS AND PROCEDURES

#### Disclosure Controls and Procedures

Our management, under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, carried out an evaluation of the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of December 31, 2018. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer have concluded, because of the material weaknesses described below, that our disclosure controls and procedures as of December 31, 2018 were not effective to provide reasonable assurance that information required to be disclosed by us in reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

#### Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS.

Because of its inherent limitations, internal control over financial reporting is not intended to provide absolute assurance that a misstatement of our financial statements would be prevented or detected. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit the preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Our management has evaluated the effectiveness of our internal control over financial reporting as of December 31, 2018, based upon criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework).

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our financial statements will not be prevented or detected on a timely basis. In connection with our management's evaluation of our internal control over financial reporting described above, our management has identified the following material weaknesses in our internal control over financial reporting as of December 31, 2018.

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Material weaknesses related to ineffective controls over control environment and risk assessment

We did not properly design and maintain effective controls over the control environment and risk assessment components which contributed to material weaknesses at the control activity level. As it relates to the control environment, we did not have sufficient and experienced personnel to address the Company's overall financial reporting and information technology requirements. As it relates to risk assessment, we did not maintain an effective process to adequately identify new and evolving risks of potential material misstatement, and design and implement controls to address those risks as a result of changes to our business operating environment, including managing game servers and databases located in overseas locations coupled with the rapid growth of our mobile game offerings.

Material weakness related to ineffective information technology general controls ("ITGCs")

We did not design and maintain effective control over certain ITGCs for Mobile game servers and databases that are relevant to the preparation of our financial statements. Specifically, we did not design and maintain:

- Effective control over computer operations, including data interface monitoring controls to ensure the completeness and accuracy of game operation data in certain databases.

This IT deficiency could impact the effectiveness of IT dependent controls, such as automated and manual controls that are dependent on the affected ITGCs. Especially in our case, system-generated reports and data used in revenue recognition and deferred revenue calculation related controls are adversely impacted. Accordingly, our management has determined this deficiency constitutes a material weakness.

Material weaknesses related to ineffective controls over mobile game revenue recognition and deferred revenue calculation

We did not design and maintain effective controls over the accuracy of mobile game revenue recognition and deferred revenue calculation. Specifically, we did not design controls over (i) deferred revenue calculation to enable us timely reporting of complete and accurate financial information. We did not maintain controls to (ii) review logic in data queries to calculate deferred revenue, (iii) reconcile game operation data between certain databases which we use to calculate deferred revenue, (iv) reconcile mobile revenue amount from game operation data with the revenue reports provided by mobile platform service providers and (v) review the accuracy of spreadsheet to calculate deferred revenue.

These material weaknesses could result in the misstatement of account balances or disclosures that would result in a material misstatement to the annual or interim consolidated financial statements that would not be prevented or detected. Because of the material weaknesses described above, our management has concluded that we did not maintain effective internal control over financial reporting as of December 31, 2018, based upon criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework).

Attestation Report of the Registered Public Accounting Firm

The effectiveness of the Company's internal control over financial reporting as of December 31, 2018 has been audited by Samil PricewaterhouseCoopers, an independent registered public accounting firm, as stated in their report which is included in ITEM 19 of this Annual Report.

Management's Plans for Remediation of Material Weaknesses in Internal Control over Financial Reporting

As of the date of the filing of this Annual Report, our management, including our Chief Executive Officer and Chief Financial Officer and the Audit Committee, have established a plan of actions to address the material weaknesses in our internal control over financial reporting;

- We plan to hire additional experienced and knowledgeable personnel, and conduct expanded training programs for our new and existing personnel with regard to internal control over financial reporting.

• We plan to enhance our risk assessment process to include more specific procedures for comprehensive financial statement risk identifications and to ensure appropriate control design, implementation, and re-evaluation of our control activities.

• We plan to implement ongoing monitoring control in computer operation of ITGCs on the appropriateness of data interface between mobile game databases in order to make relevant accounts related to mobile revenue are recorded appropriately and completely.

• When recognizing mobile revenue, we plan to (i) implement the controls over deferred revenue calculation to ensure timely reporting of complete and accurate financial information, (ii) strengthen the review logic in data queries to calculate deferred revenue, (iii) perform periodic reconciliation of game operation data between certain databases which we use to calculate deferred revenue, (iv) strengthen the periodic reconciliation of mobile revenue amount from game operation data with the revenue reports provided by mobile platform service providers, and (v) strengthen upper managers' review control on the accuracy of spreadsheet to calculate deferred revenue.

We will continue to report regularly to the Audit Committee on the progress and results of the remediation plan, including the identification, status and resolution of internal control deficiencies.

We believe these steps will enable us to remediate these material weaknesses. As part of our 2019 assessment of internal control over financial reporting, our management will conduct sufficient testing and evaluation of the controls to be implemented as part of this remediation plan to obtain evidence regarding whether they have been designed and are operating effectively. Until the remediation steps set forth above are fully implemented and operating for a sufficient period of time, the material weaknesses described above will continue to exist.

#### Changes in Internal Control over Financial Reporting

During 2018, we enhanced disclosure controls and procedures to ensure that relevant information about cybersecurity risks and incidents is processed and reported to our management so that they can make timely disclosure decisions and certifications.

Also, in the fourth quarter of 2018, in order to facilitate our adoption of the new lease accounting standard, IFRS 16, on January 1, 2019, we implemented internal controls to help ensure we properly evaluated our vendor agreements and assessed the impact to our consolidated financial statements. We expect to continue to implement additional internal controls related to the adoption of this standard in 2019.

Other than described above, there have been no other changes in our internal control over financial reporting that occurred during the year ended December 31, 2018 that have materially affected or are reasonably likely to materially affect our internal control over financial reporting.

#### ITEM 16. RESERVED

##### ITEM 16.A. AUDIT COMMITTEE FINANCIAL EXPERT

Our Board of Directors has determined that Mr. Yong Seon Kwon, our outside director, is an "audit committee financial expert," as such term is defined by the regulations of the SEC issued pursuant to Section 407 of the Sarbanes Oxley Act. Mr. Hwang is an independent director as such term is defined in Rule 10A-3 of the Exchange Act for purposes of the listing standards of NASDAQ that are applicable.

##### ITEM 16.B. CODE OF ETHICS

Pursuant to the requirements of the Sarbanes Oxley Act, we previously adopted a Code of Ethics applicable to all our employees, including our Chief Executive Officer, Chief Financial Officer and all other directors and executive officers. We have adopted an amended Code of Ethics, applicable to all our directors and officers and employees, which was filed as Exhibit 11.1 to our annual report for the year ended December 31, 2005. The amendment was

made to more clearly set forth the principles underlying the Code of Ethics in order to assist our directors, officers and employees in connection with their

adherence to the guidelines for ethical behavior described in the Code of Ethics. Our Code of Ethics is available on our website at: <http://www.gravity.co.kr/en/about/summary/precisionManagement.asp>.

#### ITEM 16.C. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The table below sets forth the aggregate fees billed by Samil PricewaterhouseCoopers("PwC"), the Korean network firm of PricewaterhouseCoopers and our principal accountant for the years ended December 31, 2018 and December 31, 2017, categorized by the types of services provided and a brief description of the nature of such services.

| Type of Service             | Year Ended December 31, |       | Nature of Services            |
|-----------------------------|-------------------------|-------|-------------------------------|
|                             | 2017                    | 2018  |                               |
| (In millions of Korean Won) |                         |       |                               |
| Audit Fees                  | ₩ 679                   | ₩ 921 | Audit service for the Company |
| Audit Related Fees          | —                       | —     |                               |
| Tax Fees                    | 15                      | ₩25   |                               |
| All Other Fees              | —                       | —     |                               |
| Total                       | ₩ 694                   | ₩ 946 |                               |

#### Pre-approval Policies and Procedures of the Audit Committee

Under our audit committee rules and policies, our audit committee or any member thereof, to whom approval authority has been delegated, must approve all audit services performed by our principal accountant after consulting our management.

#### ITEM 16.D. EXEMPTIONS FROM THE LISTING STANDARDS FOR AUDIT COMMITTEES

Not applicable.

#### ITEM 16.E. PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

Not applicable.

#### ITEM 16.F. CHANGE IN REGISTRANT'S CERTIFYING ACCOUNTANT

Our management undertook a process with respect to the selection of an independent auditor in connection with the implementation of a new Korean law (an amendment to the Enforcement Decree of the Act on External Audit of Stock Companies effective November 1, 2018) requiring, among other things, the appointment of an auditor by an independent audit committee within 45 days from the start date of the business year, and for a period of three consecutive business years. Following this process, on February 13, 2019, our audit committee of the Board of Directors of the Company made an independent decision to instruct the company to appoint KPMG Samjong Accounting Corp. ("KPMG"), and dismiss Samil PricewaterhouseCoopers, to serve as the Company's independent registered public accounting firm for the audit of the Company's financial statements in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board, for the fiscal years including December 31, 2019, 2020 and 2021. KPMG's appointment is expected to be effective following the filing of the Company's Form 20-F for the year ended December 31, 2018 and the issuance, by PwC, of their independent audit report for the same period. KPMG's appointment is also subject to completion of KPMG's standard client acceptance procedures and execution of an engagement letter between KPMG and the Company.



PwC's reports on the Company's consolidated financial statements for each of the fiscal years ended December 31, 2018 and 2017 did not contain an adverse opinion or a disclaimer of opinion, and were not qualified or modified as to uncertainty, audit scope or accounting principles.

During the Company's two most recent fiscal years ended December 31, 2018 and 2017 and the subsequent interim period through April 26, 2019, there were:

- (i) no disagreements between the Company and PwC on any matter of accounting principles or practices, financial statement disclosure or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of PwC, would have caused PwC to make reference to the subject matter of the disagreements in its reports on the consolidated financial statements of the Company; and
- (ii) no "reportable events" as defined in Item 16F(a)(1)(v) of Form 20-F, except for the material weaknesses related to (a) ineffective information technology general controls; (b) ineffective controls over mobile game revenue recognition and deferred revenue calculation and (c) ineffective controls over control environment and risk assessment in our internal control over financial reporting as described in Item 15 of this Annual Report.

Our management has provided PwC with a copy of the foregoing statements prior to its filing with the U.S. Securities and Exchange Commission ("SEC") and has requested and received from PwC a letter addressed to the SEC stating whether it agrees with the above statements. A copy of PwC's letter, dated April 26, 2019, is attached as Exhibit 16 to this Form 20-F. Additionally, PwC has informed KPMG about the reportable events described above.

During the Company's fiscal years ended December 31, 2018 and 2017 and the subsequent period through April 26, 2019, neither the Company nor anyone acting on its behalf consulted with KPMG regarding either:

- (i) the application of accounting principles to a specified transaction, either completed or proposed, or the type of audit opinion that might be rendered on by KPMG on the Company's financial statements or a written report or oral advice that was provided to the Company that KPMG concluded was an important factor considered by the Company in reaching a decision as to an accounting, auditing or financial reporting issue; or
- (ii) any matter that was either the subject of a disagreement, as that term is defined in Item 16F(a)(1)(iv) of Form 20-F (and the related instructions thereto), or a reportable event as described in Item 16F(a)(1)(v) of Form 20-F.

#### ITEM 16.G. CORPORATE GOVERNANCE

See ITEM 6.C. "BOARD PRACTICES."

#### ITEM 16.H. MINE SAFETY DISCLOSURE

Not applicable.

## PART III

### ITEM 17. FINANCIAL STATEMENTS

We have responded to ITEM 18. "FINANCIAL STATEMENTS" in lieu of responding to this item.

### ITEM 18. FINANCIAL STATEMENTS

Reference is made to ITEM 19. "EXHIBITS" for a list of all financial statements and related notes filed as part of this Annual Report.

### ITEM 19. EXHIBITS

#### (a) Financial Statements filed as part of this Annual Report

The following financial statements and related notes, together with the reports of an independent registered public accounting firm thereon, are filed as part of this Annual Report:

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#### (b) Exhibits filed as part of this Annual Report

#### Exhibit

| No.  | Description                                                                                                                                                                                                                                                                                                                                                                                 |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1  | <u>Articles of Incorporation, amended as of March 27, 2012 (English translation, incorporated by reference to Exhibit 1.1 of our annual report on Form 20-F (file no. 000-51138) filed on April 27, 2012)</u>                                                                                                                                                                               |
| 2.1  | <u>Form of Stock Certificate of Registrant's common stock, par value Won 500 per share (incorporated by reference to Exhibit 4.1 of our Registration Statement on Form F-1 (file no. 333-122159) filed on January 20, 2005)</u>                                                                                                                                                             |
| 2.2  | <u>Form of Amended and Restated Deposit Agreement among Registrant, Citibank, N.A., as depositary, and all holders and beneficial owners of American Depositary Shares evidenced by American Depositary Receipts, including the form of American depositary receipt (incorporated by reference to the Registrant's filing on Form F-6 (file no. 333-227893), filed on October 19, 2018)</u> |
| 4.1* | <u>9th Amendment to the 2nd Renewal of Ragnarok License and Distribution Agreement dated September 29, 2017 between GungHo Online Entertainment, Inc. and Registrant</u>                                                                                                                                                                                                                    |

- 4.2\* Lease Agreement dated January 7, 2019 between National IT Industry Promotion Agency and Registrant
- 8.1\* List of Registrant's subsidiaries
- 11.1 Registrant's Code of Ethics (amended, incorporated by reference to Exhibit 11.1 of our annual report on Form 20-F (file no. 000-51138) filed on June 30, 2006)
- 12.1\* CEO Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 12.2\* CFO Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 13.1\* CEO Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
- 13.2\* CFO Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
- 16.1\* Letter from Samil PricewaterhouseCoopers to the Securities and Exchange Commission, dated April 26, 2019
- 101.INS\* XBRL Instance Document

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101.SCH\* XBRL Taxonomy Extension Schema Document

101.CAL\* XBRL Taxonomy Extension Calculation Linkbase Document

101.DEF\* XBRL Taxonomy Extension Definition Linkbase Document

101.LAB\* XBRL Taxonomy Extension Label Linkbase Document

101.PRE\* XBRL Taxonomy Extension Presentation Linkbase Document

\*Filed herewith

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SIGNATURES

The registrant hereby certifies that it meets all of the requirements for filing on Form 20 F and that it has duly caused and authorized the undersigned to sign this Annual Report on its behalf.

GRAVITY CO., LTD.

By: /s/ Heung Gon Kim

Name: Heung Gon Kim

Title: Chief Financial Officer

Date: April 26, 2019

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of

Gravity Co., Ltd.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statements of financial position of Gravity Co., Ltd. and its subsidiaries (the “Company”) as of December 31, 2018 and 2017, and the related consolidated statements of comprehensive income, changes in equity, and cash flows for each of the three years in the period ended December 31, 2018, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. Also in our opinion, the Company did not maintain, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO because material weaknesses in internal control over financial reporting existed as of that date related to ineffective controls over control environment and risk assessment, ineffective information technology general controls, and ineffective controls over mobile game revenue recognition and deferred revenue calculation.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. The material weaknesses referred to above are described in Management's Annual Report on Internal Control over Financial Reporting appearing under Item 15. We considered these material weaknesses in determining the nature, timing, and extent of audit tests applied in our audit of the 2018 consolidated financial statements, and our opinion regarding the effectiveness of the Company's internal control over financial reporting does not affect our opinion on those consolidated financial statements.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in management's report referred to above. Our responsibility is to express an opinion on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

## Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Samil PricewaterhouseCoopers

Seoul, KOREA

April 26, 2019

We have served as the Company's auditor since 2016.

## GRAVITY CO., LTD.

## CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

As of December 31, 2018 and 2017

|                                                     |      | December 31,                | December 31, |
|-----------------------------------------------------|------|-----------------------------|--------------|
|                                                     | Note | 2018                        | 2017         |
|                                                     |      | (In millions of Korean won) |              |
| Assets                                              |      |                             |              |
| Cash and cash equivalents                           | 4, 5 | ₩ 86,051                    | ₩ 39,095     |
| Short-term financial instruments                    | 5    | 9,500                       | 22,500       |
| Accounts receivables, net                           | 5, 6 | 60,664                      | 42,168       |
| Other receivables, net                              | 5, 6 | 255                         | 698          |
| Prepaid expenses                                    | 11   | 2,516                       | 3,027        |
| Other current assets                                | 5    | 1,182                       | 1,383        |
| Total current assets                                |      | 160,168                     | 108,871      |
| Property and equipment, net                         | 7    | 1,498                       | 946          |
| Intangible assets                                   | 8    | 1,163                       | 1,036        |
| Deferred tax assets                                 | 17   | 7,413                       | 3,036        |
| Other non-current financial assets                  | 5    | 1,494                       | 1,394        |
| Other non-current assets                            | 10   | 1,438                       | 600          |
| Total non-current assets                            |      | 13,006                      | 7,012        |
| Total assets                                        |      | ₩ 173,174                   | ₩ 115,883    |
| Liabilities                                         |      |                             |              |
| Accounts payables                                   | 5    | ₩ 71,928                    | ₩ 44,410     |
| Deferred revenue                                    | 11   | 16,476                      | 16,100       |
| Withholdings                                        |      | 2,019                       | 1,439        |
| Accrued expenses                                    | 5    | 1,031                       | 1,037        |
| Income tax payable                                  | 17   | 1,944                       | 1,628        |
| Other current liabilities                           | 5    | 123                         | 130          |
| Total current liabilities                           |      | 93,521                      | 64,744       |
| Long-term deferred revenue                          | 11   | 3,598                       | 6,581        |
| Other non-current liabilities                       | 5    | 503                         | 560          |
| Total non-current liabilities                       |      | 4,101                       | 7,141        |
| Total liabilities                                   |      | 97,622                      | 71,885       |
| Equity                                              |      |                             |              |
| Share capital                                       | 12   | 3,474                       | 3,474        |
| Capital surplus                                     | 12   | 27,141                      | 27,164       |
| Other components of equity                          | 12   | 138                         | (40 )        |
| Retained earnings                                   | 12   | 45,405                      | 13,962       |
| Equity attributable to owners of the Parent Company |      | 76,158                      | 44,560       |
| Non-controlling interest                            |      | (606 )                      | (562 )       |
| Total equity                                        |      | 75,552                      | 43,998       |
| Total liabilities and equity                        |      | ₩ 173,174                   | ₩ 115,883    |

The accompanying notes are an integral part of these consolidated financial statements.

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## GRAVITY CO., LTD.

## CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

For the Years Ended December 31, 2018, 2017 and 2016

|                                                               | Note   | 2018                        | 2017      | 2016      |
|---------------------------------------------------------------|--------|-----------------------------|-----------|-----------|
|                                                               |        | (In millions of Korean won) |           |           |
|                                                               |        | except per share data)      |           |           |
| Revenues                                                      | 21, 22 | ₩ 286,770                   | ₩ 141,623 | ₩ 51,396  |
| Online games—subscription revenue                             |        | 25,897                      | 36,428    | 23,065    |
| Online games—royalties and license fees                       |        | 13,556                      | 16,244    | 12,867    |
| Mobile games and applications                                 |        | 239,489                     | 82,624    | 12,041    |
| Character merchandising, animation and other revenue          |        | 7,828                       | 6,327     | 3,423     |
| Cost of revenues                                              | 13     | 210,044                     | 94,234    | 29,587    |
| Gross profit                                                  |        | 76,726                      | 47,389    | 21,809    |
| Selling, general and administrative expenses                  | 13, 14 | (34,820 )                   | (28,012 ) | (15,977 ) |
| Research and development                                      | 13     | (8,018 )                    | (5,239 )  | (1,973 )  |
| Other income                                                  | 15     | 122                         | 165       | 44        |
| Other expenses                                                | 15     | (642 )                      | (268 )    | (69 )     |
| Operating profit                                              |        | 33,368                      | 14,035    | 3,834     |
| Finance income                                                | 5, 16  | 2,073                       | 1,875     | 1,666     |
| Finance costs                                                 | 5, 16  | (1,002 )                    | (1,452 )  | (1,673 )  |
| Profit before income tax                                      |        | 34,439                      | 14,458    | 3,827     |
| Income tax expenses                                           | 17     | 3,053                       | 1,144     | 3,240     |
| Profit for the year                                           |        | ₩ 31,386                    | ₩ 13,314  | ₩ 587     |
| Other comprehensive income (loss)                             |        |                             |           |           |
| Items that may be subsequently reclassified to income or loss |        |                             |           |           |
| Foreign currency translation adjustments                      | 12     | 178                         | 37        | (77 )     |
| Total comprehensive income for the year                       |        | ₩ 31,564                    | ₩ 13,351  | ₩ 510     |
| Profit (loss) attributable to:                                |        |                             |           |           |
| Owners of the Parent Company                                  |        | 31,443                      | 13,319    | 657       |
| Non controlling interest                                      |        | (57 )                       | (5 )      | (70 )     |
| Total comprehensive income attributable to:                   |        |                             |           |           |
| Owners of the Parent Company                                  |        | 31,621                      | 13,356    | 580       |
| Non-controlling interest                                      |        | (57 )                       | (5 )      | (70 )     |
| Earnings per share (in Korean won)                            |        |                             |           |           |
| Basic earnings per share                                      | 18     | ₩ 4,525                     | ₩ 1,917   | ₩ 95      |
| Diluted earnings per share                                    | 18     | 4,525                       | 1,917     | 95        |

The accompanying notes are an integral part of these consolidated financial statements.

## GRAVITY CO., LTD.

## CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

For the Years Ended December 31, 2016, 2017 and 2018

|                                                        | Attributable to owners of the Parent Company<br>Retained |                             |          |           |             | Non-        |                   |
|--------------------------------------------------------|----------------------------------------------------------|-----------------------------|----------|-----------|-------------|-------------|-------------------|
|                                                        | Share                                                    |                             | Other    |           | Total       | Controlling |                   |
|                                                        | Note                                                     | capital                     | surplus  | of equity |             | Interest    | equity            |
|                                                        |                                                          | (In millions of Korean won) |          |           |             |             |                   |
| Balance at January 1, 2016                             |                                                          | ₩ 3,474                     | ₩ 43,627 | ₩ —       | ₩ (16,477 ) | ₩ 30,624    | ₩ (487 ) ₩ 30,137 |
| Total comprehensive income (loss) for the year         |                                                          |                             |          |           |             |             |                   |
| Profit (loss) for the year                             |                                                          | —                           | —        | —         | 657         | 657         | (70 ) 587         |
| Foreign currency translation adjustments               | 12                                                       | —                           | —        | (77 )     | —           | (77 )       | — (77 )           |
| Total comprehensive income (loss) for the year         |                                                          | —                           | —        | (77 )     | 657         | 580         | (70 ) 510         |
| Transaction with owners, recognized directly in equity |                                                          |                             |          |           |             |             |                   |
| Disposition of deficit with capital surplus            |                                                          | —                           | (15,726) | —         | 15,726      | —           | —                 |
| Balance at December 31, 2016                           |                                                          | 3,474                       | 27,901   | (77 )     | (94 )       | 31,204      | (557 ) 30,647     |
| Balance at January 1, 2017                             |                                                          | 3,474                       | 27,901   | (77 )     | (94 )       | 31,204      | (557 ) 30,647     |
| Total comprehensive income (loss) for the year         |                                                          |                             |          |           |             |             |                   |
| Profit (loss) for the year                             |                                                          | —                           | —        | —         | 13,319      | 13,319      | (5 ) 13,314       |
| Foreign currency translation adjustments               | 12                                                       | —                           | —        | 37        | —           | 37          | — 37              |
| Total comprehensive income (loss) for the year         |                                                          | —                           | —        | 37        | 13,319      | 13,356      | (5 ) 13,351       |
| Transaction with owners, recognized directly in equity |                                                          |                             |          |           |             |             |                   |
| Disposition of deficit with capital surplus            |                                                          | —                           | (737 )   | —         | 737         | —           | —                 |

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|                                                        |         |          |       |          |          |          |          |
|--------------------------------------------------------|---------|----------|-------|----------|----------|----------|----------|
| Balance at                                             |         |          |       |          |          |          |          |
| December 31, 2017                                      | 3,474   | 27,164   | (40 ) | 13,962   | 44,560   | (562 )   | 43,998   |
| Balance at January 1, 2018                             | 3,474   | 27,164   | (40 ) | 13,962   | 44,560   | (562 )   | 43,998   |
| Total comprehensive income (loss) for the year         |         |          |       |          |          |          |          |
| Profit (loss) for the year                             | —       | —        | —     | 31,443   | 31,443   | (57 )    | 31,386   |
| Foreign currency translation adjustments <sup>12</sup> | —       | —        | 178   | —        | 178      | —        | 178      |
| Total comprehensive income (loss) for the year         | —       | —        | 178   | 31,443   | 31,621   | (57 )    | 31,564   |
| Transaction with owners, recognized directly in equity |         |          |       |          |          |          |          |
| Equity transaction within consolidation scope          | —       | (23 )    | —     | —        | (23 )    | 13       | (10 )    |
| Balance at                                             |         |          |       |          |          |          |          |
| December 31, 2018                                      | ₩ 3,474 | ₩ 27,141 | ₩ 138 | ₩ 45,405 | ₩ 76,158 | ₩ (606 ) | ₩ 75,552 |

The accompanying notes are an integral part of these consolidated financial statements.

## GRAVITY CO., LTD.

## CONSOLIDATED STATEMENTS OF CASH FLOWS

For the Years Ended December 31, 2018, 2017 and 2016

|                                                              | Note | 2018                        | 2017     | 2016     |
|--------------------------------------------------------------|------|-----------------------------|----------|----------|
|                                                              |      | (In millions of Korean won) |          |          |
| Cash flows from operating activities                         |      |                             |          |          |
| Cash generated from operations                               | 19   | ₩ 42,571                    | ₩ 28,189 | ₩ 5,213  |
| Interest received                                            |      | 680                         | 554      | 468      |
| Income taxes paid                                            |      | (7,279 )                    | (2,607 ) | (3,187 ) |
| Net cash inflow from operating activities                    |      | 35,972                      | 26,136   | 2,494    |
| Cash flows from investing activities                         |      |                             |          |          |
| Proceeds from lease deposits                                 |      | —                           | 7        | 2        |
| Proceeds from short-term loans                               |      | 3                           | 3        | 6        |
| Proceeds from disposal of property and equipment             | 7    | 69                          | 2        | 3        |
| Decrease(Increase) in short term financial instruments, net  |      | 13,000                      | (500 )   | (10,500) |
| Payment of lease deposits                                    |      | —                           | (430 )   | (10 )    |
| Purchase of property and equipment                           | 7    | (1,141 )                    | (899 )   | (154 )   |
| Purchase of other intangible assets                          | 8    | (1,108 )                    | (1,165 ) | (14 )    |
| Net cash inflow(outflow) in investing activities             |      | 10,823                      | (2,982 ) | (10,667) |
| Cash flows from financing activities                         |      |                             |          |          |
| Repayment of lease liabilities                               |      | (197 )                      | —        | —        |
| Net cash outflow in financing activities                     |      | (197 )                      | —        | —        |
| Effect of exchange rate changes on cash and cash equivalents |      | 358                         | (779 )   | (16 )    |
| Net increase (decrease) in cash and cash equivalents         |      | 46,956                      | 22,375   | (8,189 ) |
| Cash and cash equivalents at beginning of the year           |      | 39,095                      | 16,720   | 24,909   |
| Cash and cash equivalents at end of the year                 |      | ₩ 86,051                    | ₩ 39,095 | ₩ 16,720 |

The accompanying notes are an integral part of these consolidated financial statements.

## GRAVITY CO., LTD.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

## 1. General Information

## The Parent Company

Gravity Co., Ltd. (the “Parent Company” or “Gravity”) was incorporated on April 4, 2000 to engage in developing and distributing online games and other related businesses principally in the Republic of Korea and other countries in Asia, North and South America, and Europe. Gravity’s principal product, Ragnarok Online, a multiplayer online role playing game, was commercially launched in August 2002. On February 8, 2005, Gravity listed its common shares on NASDAQ in the United States by means of American Depositary Shares (“ADSs”).

Gravity has four subsidiaries. NeoCyon, Inc. operate in the Republic of Korea, Gravity Interactive, Inc., operates in the United States, Gravity Entertainment Corporation operates in Japan and Gravity Communications Co.,Ltd. operates in Taiwan. Gravity has a local branch in Taiwan.

Gravity Games Corporation was excluded from the consolidation during the year ended December 31, 2018 due to liquidation.

On April 1, 2008, GungHo Online Entertainment, Inc. became a majority shareholder by acquiring 52.39% of the voting shares from Heartis Inc., the former majority shareholder, and also acquired an additional 6.92% of voting shares on June 23 and June 24, 2008. As of December 31, 2018, GungHo Online Entertainment, Inc. has majority ownership and voting rights (59.31%) over the Gravity.

## Consolidated Subsidiaries

The accompanying consolidated financial statements include the accounts of Gravity and the consolidated subsidiaries (collectively referred to as the “Company”). Details of the consolidated subsidiaries as of December 31, 2018 and 2017 are as follows:

| Subsidiary                                       | Location | Ownership interest held |          | by the Gravity (%) |      | Main business                                         |
|--------------------------------------------------|----------|-------------------------|----------|--------------------|------|-------------------------------------------------------|
|                                                  |          | 2018                    | 2017     | 2018               | 2017 |                                                       |
|                                                  |          |                         |          |                    |      |                                                       |
| NeoCyon, Inc. <sup>(*1)</sup>                    | Korea    | 98.73 %                 | 96.11 %  |                    |      | Mobile game development and service                   |
| Gravity Interactive, Inc                         | U.S.A.   | 100.00 %                | 100.00 % |                    |      | Online and mobile game services                       |
| Gravity Games Corp <sup>(*2)</sup>               | Korea    | - %                     | 85.50 %  |                    |      | Online game development                               |
| Gravity Entertainment Corp                       | Japan    | 100.00 %                | 100.00 % |                    |      | Animation production, distribution, and game services |
| Gravity Communications Co., Ltd. <sup>(*3)</sup> | Taiwan   | 100.00 %                | - %      |                    |      | Online and mobile game services                       |

(\*1) In 2018, the Company additionally acquired the share capital of NeoCyon, Inc. through additional capital increase.

(\*2)

Gravity Games Corp. was excluded from the consolidation during the year ended December 31, 2018 due to liquidation.

(\*3) Gravity Communications Co., Ltd. was newly established in 2018.

## 2. Significant Accounting Policies

The principal accounting policies applied in the preparation of these consolidated financial statements are set out below. These policies have been consistently applied to all years presented, unless otherwise stated.

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## Basis of Preparation

The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (“IFRS”) as issued by International Accounting Standard Board (“IASB”). The Company has adopted IFRS as issued by IASB for the annual period beginning on January 1, 2017. In accordance with IFRS 1 First-time adoption of IFRS, the Company’s transition date to IFRS is January 1, 2016. Prior to the adoption of IFRS, the Company prepared the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (“U.S.GAAP”).

The preparation of financial statements requires the use of critical accounting estimates. Management also needs to exercise judgement in applying Gravity’s accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 3.

## Changes in Accounting Policies and Disclosures

### New and amended standards adopted by the Company

The Group has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2018. The amendment does not have a significant impact on the financial statements.

#### (i) Amendment to IAS 28 Investments in Associates and Joint Ventures

When an investment in an associate or a joint venture is held by, or is held indirectly through, an entity that is a venture capital organization, or a mutual fund, unit trust and similar entities including investment-linked insurance funds, the entity may elect to measure each investment separately at fair value through profit or loss in accordance with IFRS 9. The amendment does not have a significant impact on the financial statements because the Company is not a venture capital organization.

#### (ii) Amendment to IAS 40 Transfers of Investment Property

The amendment to IAS 40 clarifies that a transfer to, or from, investment property, including property under construction, can only be made if there has been a change in use that is supported by evidence, and the list of evidence for a change of use in the standard was re-characterized as a non-exclusive list of example. The amendment does not have a significant impact on the financial statements.

#### Amendment to IFRS 2 Share-based Payment

Amendments to IFRS 2 clarify accounting for a modification to the terms and conditions of a share-based payment that changes the classification of the transaction from cash-settled to equity-settled. Amendments also clarify that the measurement approach should treat the terms and conditions of a cash-settled award in the same way as for an equity-settled award. The amendment does not have a significant impact on the financial statements.

#### Enactment of IFRIC Interpretation 22 Foreign Currency Transaction and Advance Consideration

According to the enactment, the date of the transaction for the purpose of determining the exchange rate to use on initial recognition of the related asset, expense or income (or part of it) is the date on which an entity initially recognizes the non-monetary asset or non-monetary liability arising from the payment or receipt of advance consideration. The enactment does not have a significant impact on the financial statements.

#### IFRS 9 Financial Instruments

The Company has applied IFRS 9 Financial Instruments on January 1, 2018, the date of initial application. In accordance with the transitional provisions in IFRS 9, comparative figures have not been restated, and the differences between previous book amounts and book amounts at the date of initial application are recognized to retained earnings (or equity). Application of IFRS 9 does not have a significant impact on the financial statements.

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## IFRS 15 Revenue from Contracts with Customers

The Company has applied to apply IFRS 15 Revenue from Contracts with Customers. In accordance with the transition provisions in IFRS 15, comparative figures have not been restated. The Company elected the modified retrospective approach, and recognized the cumulative impact of initially applying the revenue standard as an adjustment to retained earnings (or equity) as at January 1, 2018, the period of initial application. Application of IFRS 15 does not have a significant impact on the financial statements.

## Consolidation

The Company has prepared the consolidated financial statements in accordance with IFRS 10 Consolidated Financial Statements.

Subsidiaries are all entities over which Gravity has control. The Company controls an entity when the Company is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power to direct the activities of the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Gravity. They are deconsolidated from the date that control ceases.

The acquisition method of accounting is used to account for business combinations by the Company. The consideration transferred is measured at the fair values of the assets transferred, and identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair value at the acquisition date. The Company recognizes any non-controlling interest in the acquired entity on an acquisition-by-acquisition basis either at fair value or at the non-controlling interest's proportionate share of the acquired entity's net identifiable assets. All other non-controlling interests are measured at fair values, unless otherwise required by other standards. Acquisition-related costs are expensed as incurred.

The excess of consideration transferred, amount of any non-controlling interest in the acquired entity and acquisition-date fair value of any previous equity interest in the acquired entity over the fair value of the net identifiable assets acquired is recorded as goodwill. If those amounts are less than the fair value of the net identifiable assets of the business acquired, the difference is recognized directly in the profit or loss as a bargain purchase.

Intercompany transactions, balances and unrealized gains on transactions between consolidated companies are eliminated. Unrealized losses are also eliminated unless the transaction provides evidence of an impairment of the transferred asset. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by Gravity.

## Foreign Currency Translation

### Functional and presentation currency

Items included in the financial statements of each of the Company's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The consolidated financial statements are presented in Korean Won, which is the Parent Company's functional currency.

### Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at year end exchange rates are

generally recognized in profit or loss.

Non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined. Translation differences on assets and liabilities carried at fair value are reported as part of the fair value gain or loss. For example, translation differences on non-monetary assets and liabilities such as equities held at fair value through profit or loss are recognized in profit or loss as part of the fair value gain or loss and translation differences on non-monetary assets such as equities classified as available-for-sale financial assets are recognized in other comprehensive income.

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## Finance Income and Finance Costs

Finance income comprises interest income, unrealized foreign currency gain, and gain on foreign currency transaction. Finance costs comprise unrealized foreign currency loss and loss on foreign currency transaction. The Company presents all foreign exchange gains and losses in finance income and finance costs.

## Segment Reporting

Information of each operating segment is reported in a manner consistent with the internal business segment reporting provided to the chief operating decision-maker (Note 21). The chief operating decision-maker is responsible for allocating resources and assessing performance of the operating segments.

## Cash and cash equivalents

Cash and cash equivalents consist of cash held, bank deposits and floating short-term investment assets that are highly liquid monetary financial instruments with an expiration date of less than three months upon acquisition.

## Financial Assets

### Classification

From January 1, 2018, the Company classifies its financial assets in the following measurement categories:

- those to be measured at fair value through profit or loss

- those to be measured at fair value through other comprehensive income, and

- those to be measured at amortized cost.

The classification depends on the Company's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Company reclassifies debt investments when, and only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, this will depend on whether the Company has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income. Changes in fair value of equity instruments not elected as equity investment at fair value through other comprehensive income will be recognized in profit or loss.

### Measurement

At initial recognition, the Company measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.



(i) Debt instruments

Subsequent measurement of debt instruments depends on the Company's business model for managing the asset and the cash flow characteristics of the asset. The Company classifies its debt instruments into one of the following three measurement categories:

**Amortized cost:** Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'finance income' using the effective interest rate method.

**Fair value through other comprehensive income:** Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial asset is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'finance income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'finance income or costs' and impairment losses are presented in 'other non-operating expenses'.

**Fair value through profit or loss:** Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented net in the statement of profit or loss within 'other non-operating income or expenses' in the year in which it arises.

(ii) Equity instruments

The Company subsequently measures all equity investments at fair value. Where the Company's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'finance income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other income and expenses' in the statement of profit or loss as applicable. Impairment loss (reversal of impairment loss) on equity investments measured at fair value through other comprehensive income are not reported separately from other changes in fair value.

Impairment

The Company assesses on a forward looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables and lease receivables, the Company applies the simplified approach, which requires expected lifetime credit losses to be recognized from initial recognition of the receivables.

Recognition and Derecognition

Regular way purchases and sales of financial assets are recognized or derecognized on trade-date, the date on which the Company commits to purchase or sell the asset. Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Company has transferred substantially all the risks and rewards of ownership.

If a transfer does not result in derecognition because the Company has retained substantially all the risks and rewards of ownership of the transferred asset, the Company continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received.

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## Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount reported in the statements of financial position where there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business and in the event of default, insolvency or bankruptcy of the Company or the counterparty.

## Property and equipment

Property and equipment are stated at historical cost less accumulated depreciation and accumulated impairment losses. Historical cost includes expenditure that is directly attributable to the acquisition of the assets.

Depreciation of all property and equipment, except for land, is calculated using the straight-line method to allocate their cost or revalued amounts, net of their residual values, over their estimated useful lives as follows:

|                        |         |
|------------------------|---------|
| Computer and equipment | 4 years |
| Furniture and fixtures | 4 years |
| Leasehold improvements | 4 years |

The assets' depreciation method, residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

## Intangible assets

Intangible assets, except for goodwill, are initially recognized at its historical cost, and carried at cost less accumulated amortization and accumulated impairment losses.

The Company amortizes intangible assets with a definite useful life using the straight-line method over the following periods:

|                            |             |
|----------------------------|-------------|
| Software                   | 2 ~ 3 years |
| Industrial property rights | 10 years    |
| License                    | 2 years     |
| Other intangible assets    | 3 years     |

## Royalties and licenses

The Company entered into a game licensing agreement with number of third parties to gain exclusive rights to the games developed by other companies, 'Licensors'. The contracts with some licensors include initial upfront license fees, and/or minimum guaranteed royalty payments, which are creditable against the amount of running royalty calculated as certain percentage of the Company's revenue. The license fee payments and minimum guaranteed royalty payments are initially recorded as 'License' and 'Other non-current asset', respectively. Running royalty obligation over the guaranteed minimum payment is accrued as incurred and subsequently paid.

The royalty-based obligations are generally expensed to cost of revenue generally at the greater of the contractual rate or a straight-line basis over the term of the contract when the contract includes minimum guaranteed royalty payments. The license payments are generally expensed to cost of revenue generally at a straight-line basis over the term of the contract.

The Company evaluate the expected future realization of these assets using discounted cash flows. If impairment exists, then the assets are written down to fair value less cost of disposal.

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## Impairment of Non-financial Assets

Goodwill and intangible assets that have an indefinite useful life or not yet available for use, are not subject to amortization and are tested annually for impairment, or more frequently if events or changes in circumstances indicate that they might be impaired. Other assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal or value in use. Non-financial assets other than goodwill that have been impaired are reviewed for possible reversal of the impairment at the end of each reporting period.

## Financial Liabilities

### Classification and measurement

The Company's financial liabilities at fair value through profit or loss are financial instruments held for trading. A financial liability is held for trading if it is incurred principally for the purpose of repurchasing in the near term. A derivative that is not a designated as hedging instruments and an embedded derivative that is separated are also classified as held for trading.

The Company classifies non-derivative financial liabilities, except for financial liabilities at fair value through profit or loss, financial guarantee contracts and financial liabilities that arise when a transfer of financial assets does not qualify for derecognition, as financial liabilities carried at amortized cost and present as 'account payables', 'other current liabilities' and 'other non-current liabilities' in the consolidated statement of financial position.

### Derecognition

Financial liabilities are removed from the statement of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss

### Provisions

Provisions are recognized when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that the Company will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation. When a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows (where the effect of the time value of money is material). The discount rate used is a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. Where discounting is used, the increase in the provision due to the passage of time is recognized in profit or loss as borrowing cost.

At the end of each reporting period, the remaining provision balance is reviewed and assessed to determine if the current best estimate is being recognized. If the existence of an obligation to transfer economic benefit is no longer probable, the related provision is reversed during the period.

As of December 31, 2018 and 2017, there are no material provision balances on the consolidated statements of financial position.

#### Current and Deferred Tax

The tax expense for the period consists of current and deferred tax. Current and deferred taxes are recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In these cases, the tax is also recognized in other comprehensive income or directly in equity, respectively.

The tax expense is measured at the amount expected to be paid to the taxation authorities, using the tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

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Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. The Company recognizes current income tax on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss.

Deferred tax assets are recognized only if it is probable that future taxable income will be available to utilize those temporary differences.

The Company recognizes a deferred tax liability all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint arrangements, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, The Company recognizes a deferred tax asset for all deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends to settle on a net basis.

## Employee Benefits

### Salaries

During the accounting period, during which employees provide work services to generate the right to annual paid vacation, the Company recognizes the costs and liabilities associated with annual paid vacation.

### Defined contribution plan

The Company operates defined contribution plan for certain employees and directors in Korea. Gravity and NeoCyon introduced a defined contribution plan in 2005 and 2011, respectively, and provide an individual account for each participant. The Company pays contribution to publicly or privately administered pension insurance plans on a mandatory or contractual basis. The Company has no further payment obligation once the contribution has been paid. Contributions to defined contribution retirement benefit plans are recognized as an expense when employees have rendered service entitling them to the contributions.

## Revenue Recognition

The Company has applied IFRS 15 Revenue from Contracts with Customers on January 1, 2018, the date of initial application.

The Company derives revenue principally from online and mobile subscription revenues from Ragnarok Online and Ragnarok Online intellectual property (“IP”)-based games paid by users in Korea, Taiwan and South-East Asia regions, and royalties and license fees paid by the licensees of the Company in overseas markets.

### Online games—subscription revenue

The Company recognizes online subscription revenue players make use of in-game premium features.

Players can access games free of charge, but may purchase game points to acquire in-game premium features. Subscription revenue consists of revenues from (i) micro-transactions, and (ii) subscription fees from Internet cafés. Micro-transaction fees for consumable in-game items are deferred when purchased, and then recognized as revenue as they are used in the games while permanent in-game items are recognized ratably as revenues over the estimated life cycle of game users. Prepaid subscription fees from Internet cafés are deferred and recognized as revenue on a monthly basis based on actual hours used.

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#### Online games—royalties and license fees

The Company licenses the right to distribute and market its local version of games to overseas licensees (“game licensing contracts”) in exchange for an initial prepaid license fee and/or guaranteed minimum royalty payments. The Company generally provides its licenses with post-contract customer support on its software products, consisting of technical support and occasional unspecified upgrades, or enhancements during the contract term. The Company determined that granting a license is not distinct from other promised services in the contracts, therefore, the promise to grant a license and those other promised services together are considered a single performance obligation. Revenue is recognized over time, from commercial launch date to expiration date of contract under IAS 18 whereas it is recognized from the date when performance obligation is performed for the first time to expiration date of contract under IFRS 15.

When the running royalty revenue based on the contractual royalty rate and the actual revenue of the licensee exceeds the ratably recognized guaranteed minimum, the excess is then recognized as revenue and accounts receivable. Although the accounting framework changes, the accounting treatment under the new standard would not be substantially changed.

#### Mobile games and applications revenue

Mobile games and applications revenue consists of revenues from (i) micro-transactions that users purchase in cases where the Company directly provides mobile game services to users; (ii) royalties and license fees from licensees to which the Company licenses the right to distribute, promote, and market its local version of mobile games in overseas countries (“game licensing contracts”); (iii) royalties and license fees from licensees to which the Company licenses the right to use the original game and intellectual property to develop new games and distribute, promote, and market those newly developed games (“IP licensing contracts”); revenues from (iv) contract development services provided by the Company to third parties, such as developing games embedded in mobile phones, mobile applications, and sound for mobile phones and appliances; revenues from (v) mobile games operation services for third parties.

Revenues from (i) micro-transactions and (ii) royalties and license fees from licensees for game licensing contracts are recognized in line with those of Online games. Revenue from (iii) royalties and license fees from licensees for IP licensing contracts are recognized over time, from initial IP delivery date to expiration date of contract. The nature of granting IP license is considered as a promise to provide a right to access. The accounting treatment of running royalty revenue is the same as that of game licensing contracts. Revenues from (iv) mobile application development services are recognized over time by measuring progress towards complete satisfaction of a performance obligation. The progress is measured by reference to the costs incurred up to the end of the reporting period as a percentage of total estimated costs for each contract. Revenues from (v) mobile games operation service are recognized over time as the customer simultaneously receives and consumes the benefits provided by the Company. The progress is measured by reference to the labor hours, which are expended evenly throughout the contract period.

#### Character merchandising, animation and other revenue

Character merchandising, animation and other revenue consists of revenue from sales of console games, game character merchandising, animation and other services, including sales of goods related to mobile phones and website development and operation services for third parties.

#### Cost deferral

The Company pays platform processing fees to operate mobile games on third party platforms. These fees are charged for the game users' purchases in cash, and are considered as the incremental cost which is required to be capitalized. The Company records these costs as prepaid expense and amortizes them to costs of revenue in accordance with the related revenue recognition of the services provided to the game user.

#### Research and development expenses

Research and development expenses consist primarily of payroll and other overhead expenses which are all expensed as incurred. Research and development expenses for a game development are capitalized only after the technological feasibility of the game is established. The technological feasibility of the game is not established until substantially all development is complete, which is generally when it is ready for open beta testing.

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## Lease

A lease is an agreement, whereby the lessor conveys to the lessee, in return for a payment or series of payments, the right to use an asset for an agreed period of time. Leases in which a significant portion of the risks and rewards of ownership are not transferred to the Company are classified as operating leases. Payments made under operating leases are charged to expenses on a straight-line basis over the period of lease

## Earnings per share

Basic earnings per share is calculated by dividing profit attributable to owners of the Parent by the weighted average number of common shares outstanding during the period. Diluted earnings per share is computed by dividing net earnings by the weighted average number of common shares outstanding, increased by common stock equivalents. However, for the years ended December 31, 2018 and 2017, there have been no common stock equivalents outstanding.

## Approval of the Financial Statements

The 2018 consolidated financial statements were approved by the Board of Directors on April 26, 2019.

## New standards and interpretations not yet adopted by the Company

Certain new accounting standards and interpretations that have been published but are not mandatory for the annual reporting period commencing January 1, 2018 and have not been early adopted by the Company are set out below.

### (i) IFRS 16 Leases

IFRS 16 Leases issued in January 2016 is effective for annual periods beginning on or after January 1, 2019, with early adoption permitted. This standard will replace IAS 17 Leases, IFRIC Interpretation 4 Determining whether an Arrangement contains a Lease, SIC Interpretation 15 Operating Leases-Incentives, and SIC Interpretation 27 Evaluating the Substance of Transactions Involving the Legal Form of a Lease. The Company will apply the standard for the annual period beginning on or after January 1, 2019.

At inception of a contract, the entity shall assess whether the contract is, or contains, a lease. Also, at the date of initial application, the entity shall assess whether the contract is, or contains, a lease in accordance with the standard. For a contract that is, or contains, a lease, the entity shall account for each lease component within the contract as a lease separately from non-lease components of the contract. A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments. The lessee may elect not to apply the requirements to short-term lease (a lease term of 12 months or less at the commencement date) and low value assets.

The Company plans to apply IFRS 16 retrospectively with the cumulative effect of initially applying the standard as at January 1, 2019. The Company will not restate any comparative information. Instead, the cumulative effect of applying the standard will be recognized as an adjustment to the opening balance of retained earnings at the date of initial application.

In order to prepare for the adoption of IFRS 16, the Company performed an impact assessment to identify potential financial effects of applying IFRS 16. The Company is analyzing the effects on the financial statements based on available information as of December 31, 2018 to identify effects on 2018 financial statements.

The total minimum lease payment expected to be paid by the Group in relation to operating leases before discounted to their present value is Won 4,726 million. When the payment is discounted at incremental borrowing rate of the lessee, the total minimum lease payment amounts to Won 4,358 million. For a contract that is, or contains, a lease, the Company plans to account for each lease component within the contract as a lease separately from non-lease components of the contract.

The lease expenses currently recognized in the statement of comprehensive income will be replaced by depreciation on assets and interest expenses from the compounding of lease liabilities. Payments for the repayment of lease liabilities and payments relating to the interest portion of the lease liability will be allocated to cash flow from financing activities. The impact of adoption on net profit and cash flows from operating activities and financing activities is expected to be immaterial.

## (ii) IFRIC Interpretation 23 Uncertainty over Income Tax Treatment

The Interpretation, issued in July 2017, clarifies application of recognition and measurement requirements in IAS 12. The Interpretation specifically addresses the following: (i) whether an entity considers uncertain tax treatments separately, (ii) the assumptions an entity makes about the examination of tax treatments by taxation authorities, (iii) how an entity determines taxable profit (tax loss), tax bases, unused tax losses, unused tax credits and tax rates and (iv) how an entity considers changes in facts and circumstances. IFRIC 23 is effective for annual reporting periods beginning on or after January 1, 2019, but certain transition reliefs are available. The Company does not expect a significant impact on its financial statements on applying the interpretation.

## 3. Critical Accounting Estimates and Assumptions

The preparation of financial statements requires the Company to make estimates and assumptions concerning the future. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below.

## Deferred tax assets

The Company recognizes a previously unrecognized deferred tax asset to the extent that it is probable that future taxable profit will allow the deferred tax asset to be recovered. The Company considered its performance, general economic environment, projected future taxable income, periods available to deduct tax loss carryforwards and tax credit carryforwards, etc. Deferred tax assets are dependent on future taxable income in specific tax jurisdictions during the periods in which temporary differences are deductible. The amount of deferred tax assets may be different if the Company does not generate estimated future taxable income during the carry forward periods as originally expected.

## 4. Cash and Cash equivalents

(1) Cash and cash equivalents as of December 31, 2018 and 2017 consist of the following:

|                          | December<br>31,<br><br>2018    | December<br>31,<br><br>2017 |
|--------------------------|--------------------------------|-----------------------------|
|                          | (In millions of Korean<br>won) |                             |
| Deposits in banks        | ₩ 48,005                       | ₩ 24,431                    |
| Money market instruments | 38,046                         | 14,664                      |
| Total                    | ₩ 86,051                       | ₩ 39,095                    |

(2) Restricted cash included in cash and cash equivalents as of December 31, 2018 and 2017 are as follows:

|                      | December<br>31, 2018           | December<br>31, 2017 |
|----------------------|--------------------------------|----------------------|
|                      | (In millions of<br>Korean won) |                      |
| Credit card deposits | <del>₩</del> —                 | <del>₩</del> 20      |

## 5. Financial instruments

(1) Financial assets and liabilities by category, as of December 31, 2018 and 2017 are as follows:

|                                    | December 31,                |                |
|------------------------------------|-----------------------------|----------------|
|                                    | 2018                        | 2017           |
| Financial assets                   |                             |                |
|                                    | at                          | Loans and      |
|                                    | amortized                   | receivables    |
|                                    | cost                        |                |
|                                    | (In millions of Korean won) |                |
| Financial assets                   |                             |                |
| Cash and cash equivalents          | ₩ 86,051                    | ₩ 39,095       |
| Short-term financial instruments   | 9,500                       | 22,500         |
| Accounts receivables               | 60,664                      | 42,168         |
| Other receivables                  | 255                         | 698            |
| Other current assets               | 191                         | 155            |
| Other non-current financial assets | 1,494                       | 1,394          |
| Total                              | ₩ 158,155                   | ₩ 106,010      |
|                                    | Financial                   | Financial      |
|                                    | liabilities at              | liabilities at |
|                                    | amortized                   | amortized      |
|                                    | cost                        | cost           |
| Financial liabilities              |                             |                |
| Accounts payables                  | ₩ 71,928                    | ₩ 44,410       |
| Accrued expenses                   | 16                          | 322            |
| Other current liabilities          | 113                         | 107            |
| Other non-current liabilities      | 34                          | 141            |
| Total                              | ₩ 72,091                    | ₩ 44,980       |

Other current assets include short-term loans and accrued interest. Other non-current financial assets include leasehold deposits, other deposits, and long-term loans. Other non-current liabilities include capital lease payables.

(2) Net Gains or Losses by Category of Financial Instruments

Net gains or losses by each category of financial instruments for the periods ended December 31, 2018, 2017 and 2016 are as follows:



|                                                 | 2018                        | 2017  | 2016    |
|-------------------------------------------------|-----------------------------|-------|---------|
| Financial assets at amortized cost              | (In millions of Korean won) |       |         |
| Interest income                                 | ₩ 819                       | ₩ 554 | ₩ 522   |
| Gains on foreign currency transactions          | 159                         | 231   | 759     |
| Financial liabilities at amortized cost         |                             |       |         |
| Income(losses) on foreign currency transactions | 105                         | (349) | (1,289) |

(3) The carrying amount and fair value of financial instruments as of December 31, 2018 and 2017 are as follows:

|                                                        | December 31, 2018           |            |
|--------------------------------------------------------|-----------------------------|------------|
|                                                        | Carrying value              | Fair value |
| Financial assets                                       | (In millions of Korean won) |            |
| Cash and cash equivalents                              | ₩ 86,051                    | ₩ 86,051   |
| Short-term deposits not classified as cash equivalents | 9,500                       | 9,500      |
| Accounts receivables                                   | 60,664                      | ( * )      |
| Other receivables                                      | 255                         | ( * )      |
| Other current assets                                   | 191                         | ( * )      |
| Other non-current financial assets                     | 1,494                       | ( * )      |
| Total                                                  | ₩ 158,155                   |            |
| Financial liabilities                                  |                             |            |
| Accounts payables                                      | ₩ 71,928                    | ( * )      |
| Accrued expenses                                       | 16                          | ( * )      |
| Other current liabilities                              | 113                         | ( * )      |
| Other non-current liabilities                          | 34                          | ( * )      |
| Total                                                  | ₩ 72,091                    |            |

|                                                        | December 31, 2017           |            |
|--------------------------------------------------------|-----------------------------|------------|
|                                                        | Carrying value              | Fair value |
| Financial assets                                       | (In millions of Korean won) |            |
| Cash and cash equivalents                              | ₩ 39,095                    | ₩ 39,095   |
| Short-term deposits not classified as cash equivalents | 22,500                      | 22,500     |
| Accounts receivables                                   | 42,168                      | (*)        |
| Other receivables                                      | 698                         | (*)        |
| Other current assets                                   | 155                         | (*)        |
| Other non-current financial assets                     | 1,394                       | (*)        |
| Total                                                  | ₩ 106,010                   |            |
| Financial liabilities                                  |                             |            |
| Accounts payables                                      | ₩ 44,410                    | (*)        |
| Accrued expenses                                       | 322                         | (*)        |
| Other current liabilities                              | 107                         | (*)        |
| Other non-current liabilities                          | 141                         | (*)        |
| Total                                                  | ₩ 44,980                    |            |

(\*) As the carrying amount is a reasonable approximation of fair value due to the short maturity of the instrument, it is excluded from fair value disclosure.

(4) The fair value hierarchy of the Company's financial instruments at fair values as of December 31, 2018 and 2017 is as follows:

|                                  | December 31, 2018           |          |         |          |
|----------------------------------|-----------------------------|----------|---------|----------|
|                                  | Level 1                     | Level 2  | Level 3 | Total    |
|                                  | (In millions of Korean won) |          |         |          |
| Cash and cash equivalents        | ₩ 48,005                    | ₩ 38,046 | ₩ —     | ₩ 86,051 |
| Short-term financial instruments | ₩ 5,500                     | ₩ 4,000  | ₩ —     | ₩ 9,500  |

| December 31, 2017                |                             |          |         |          |
|----------------------------------|-----------------------------|----------|---------|----------|
|                                  | Level 1                     | Level 2  | Level 3 | Total    |
|                                  | (In millions of Korean won) |          |         |          |
| Cash and cash equivalents        | ₩ 24,431                    | ₩ 14,664 | ₩ —     | ₩ 39,095 |
| Short-term financial instruments | ₩ 11,000                    | ₩ 11,500 | ₩ —     | ₩ 22,500 |

Fair value measurements are categorized into Level 1, 2 or 3 as follows:

Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the Company can access at the measurement date;

Level 2 inputs are inputs, other than quoted prices included within Level 1, that are observable for the asset or liability, either directly or indirectly; and

Level 3 inputs are unobservable inputs for the asset or liability.

The fair value of financial instruments traded in an active market is determined based on the quoted market price as of the end of the reporting period. If the quoted prices are readily and regularly available through exchanges, sellers, brokers, industry groups, rating agencies or regulators and such prices represent actual market transactions that occur regularly between independent parties, they are considered active markets. These products are included in Level 1.

The fair value of financial instruments that are not traded in an active market is determined using valuation techniques. These valuation techniques use as much market observable information as possible and use the least amount of group-specific information. At this time, if all the significant input variables required to measure the fair value of a financial instrument are observable, the instrument is included in Level 2.

If one of more than one significant input variable is not based on observable market information, the financial instrument is included in Level 3.

The valuation techniques used to measure the fair value of a financial instrument include:

- Market price or dealer price of a similar financial instrument
- The fair value of derivative instruments is determined by discounting the amount to present value using the leading exchange rate as of the end of the reporting period

## 6. Accounts and Other Receivables

(1) Accounts and other receivables as of December 31, 2018 and 2017 are as follows:

| December 31, 2018           | December 31, 2017 |
|-----------------------------|-------------------|
| (In millions of Korean won) |                   |

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|                                                |          |          |
|------------------------------------------------|----------|----------|
| Accounts receivables                           |          |          |
| Non-related party                              | ₩ 59,633 | ₩ 41,516 |
| Related party                                  | 1,053    | 775      |
| Deduction : Allowance for doubtful receivables | (22 )    | (123 )   |
| Total                                          | ₩ 60,664 | ₩ 42,168 |

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|                                                | December 31, 2018           | December 31, 2017 |
|------------------------------------------------|-----------------------------|-------------------|
|                                                | (In millions of Korean won) |                   |
| Other receivables                              |                             |                   |
| Non-related party                              | ₩ 339                       | ₩ 744             |
| Related party                                  | —                           | —                 |
| Deduction : Allowance for doubtful receivables | (84 )                       | (46 )             |
| Total                                          | ₩ 255                       | ₩ 698             |

The above accounts and other receivables are classified as loans and receivables, and are measured at amortized cost.

(2) Aging analysis of accounts and other receivables as of December 31, 2018 and 2017 are as follows

|                           | December 31, 2018           | December 31, 2017 |
|---------------------------|-----------------------------|-------------------|
|                           | (In millions of Korean won) |                   |
| Accounts receivables      |                             |                   |
| Receivables not past due  | ₩ 60,642                    | ₩ 42,146          |
| Past due but not impaired | 22                          | 22                |
| Impaired                  | 22                          | 123               |
| Total                     | ₩ 60,686                    | ₩ 42,291          |

|                           | December 31, 2018           | December 31, 2017 |
|---------------------------|-----------------------------|-------------------|
|                           | (In millions of Korean won) |                   |
| Other receivables         |                             |                   |
| Receivables not past due  | ₩ 255                       | ₩ 698             |
| Past due but not impaired | —                           | —                 |
| Impaired                  | 84                          | 46                |
| Total                     | ₩ 339                       | ₩ 744             |

The Company calculates recoverable amount of receivables for which loss event has been individually identified through individual analysis and recognizes the difference between such calculated recoverable amount and book value as impairment loss.

As for the receivables for which loss event has not been individually identified, the Company makes adjustments to provision for impairment by applying certain specified rate in consideration of the credit risk based on the overdue period.

(3) Changes in allowance for doubtful accounts for the years ended December 31, 2018, 2017 and 2016 are as follows

| Accounts receivables            | 2018                        | 2017  | 2016  |
|---------------------------------|-----------------------------|-------|-------|
|                                 | (In millions of Korean won) |       |       |
| Beginning of the year           | ₩ 123                       | ₩ 126 | ₩ 125 |
| (Reversal of) Bad debt expenses | 55                          | (3 )  | 1     |
| Write-off                       | (156)                       | —     | —     |
| End of the year                 | ₩ 22                        | ₩ 123 | ₩ 126 |

| Other receivables               | 2018                        | 2017 | 2016 |
|---------------------------------|-----------------------------|------|------|
|                                 | (In millions of Korean won) |      |      |
| Beginning of the year           | ₩ 46                        | ₩ 45 | ₩ 47 |
| (Reversal of) Bad debt expenses | 40                          | 1    | (2 ) |
| Write-off                       | (2 )                        | —    | —    |
| End of the year                 | ₩ 84                        | ₩ 46 | ₩ 45 |

In assessing the recoverability of accounts receivables, the Company considers changes in the credit rating of accounts receivables from the commencement of the credit to the end of the reporting period.

## 7. Property and equipment

(1) Property and equipment as of December 31, 2018 and 2017 are as follows

| December 31, 2018           |             |              |         |
|-----------------------------|-------------|--------------|---------|
| (In millions of Korean won) |             |              |         |
|                             | Acquisition | Accumulated  | Book    |
|                             | price       | Depreciation | amount  |
| Machinery                   | ₩ 7,125     | ₩ (6,237 )   | ₩ 888   |
| Office equipment            | 1,924       | (1,440 )     | 484     |
| Leasehold improvements      | 1,124       | (998 )       | 126     |
| Total                       | ₩ 10,173    | ₩ (8,675 )   | ₩ 1,498 |

| December 31, 2017           |             |              |        |
|-----------------------------|-------------|--------------|--------|
| (In millions of Korean won) |             |              |        |
|                             | Acquisition | Accumulated  | Book   |
|                             | price       | Depreciation | amount |
| Machinery                   | ₩ 6,795     | ₩ (6,141 )   | ₩ 654  |
| Office equipment            | 1,867       | (1,702 )     | 165    |
| Leasehold improvements      | 1,081       | (954 )       | 127    |
| Total                       | ₩ 9,743     | ₩ (8,797 )   | ₩ 946  |

(2) Changes in property and equipment for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                         | 2018                        |        |              |         |
|-------------------------|-----------------------------|--------|--------------|---------|
|                         | Office                      |        | Leasehold    |         |
|                         | Machineryequipment          |        | improvements | Total   |
|                         | (In millions of Korean won) |        |              |         |
| Beginning of the year   | ₩ 654                       | ₩ 165  | ₩ 127        | ₩ 946   |
| Acquisition             | 550                         | 472    | 119          | 1,141   |
| Depreciation            | (297)                       | (133 ) | (115 )       | (545 )  |
| Disposal                | (32 )                       | (22 )  | (5 )         | (59 )   |
| Translation differences | 13                          | 2      | —            | 15      |
| End of the year         | ₩ 888                       | ₩ 484  | ₩ 126        | ₩ 1,498 |

|                         | 2017                        |        |              |       |
|-------------------------|-----------------------------|--------|--------------|-------|
|                         | Office                      |        | Leasehold    |       |
|                         | Machinery/equipment         |        | improvements | Total |
|                         | (In millions of Korean won) |        |              |       |
| Beginning of the year   | ₩ 231                       | ₩ 103  | ₩ 144        | ₩ 478 |
| Acquisition             | 617                         | 165    | 117          | 899   |
| Depreciation            | (174)                       | (103 ) | (98 )        | (375) |
| Disposal                | —                           | (1 )   | (37 )        | (38 ) |
| Translation differences | (20 )                       | 1      | 1            | (18 ) |
| End of the year         | ₩ 654                       | ₩ 165  | ₩ 127        | ₩ 946 |

|                         | 2016                        |        |                        |       |
|-------------------------|-----------------------------|--------|------------------------|-------|
|                         | Office                      |        | Leasehold              |       |
|                         | Machinery                   |        | equipment improvements |       |
|                         | Total                       |        |                        |       |
|                         | (In millions of Korean won) |        |                        |       |
| Beginning of the year   | ₩ 337                       | ₩ 156  | ₩ 157                  | ₩ 650 |
| Acquisition             | 73                          | 55     | 42                     | 170   |
| Depreciation            | (178)                       | (106 ) | (56 )                  | (340) |
| Disposal                | (1 )                        | (1 )   | —                      | (2 )  |
| Translation differences | —                           | (1 )   | 1                      | —     |
| End of the year         | ₩ 231                       | ₩ 103  | ₩ 144                  | ₩ 478 |

(3) The depreciation expenses recognized in the statements of comprehensive income for the years ended December 31, 2018, 2017 and 2016 are as follows

|                                              | 2018                        | 2017  | 2016  |
|----------------------------------------------|-----------------------------|-------|-------|
|                                              | (In millions of Korean won) |       |       |
| Cost of revenue                              | ₩ 260                       | ₩ 182 | ₩ 223 |
| Selling, general and administrative expenses | 233                         | 150   | 99    |
| Research and development                     | 52                          | 43    | 18    |
| Total                                        | ₩ 545                       | ₩ 375 | ₩ 340 |

(4) As of the end of the reporting period, there are no tangible assets of the Company that are pledged as collateral for the Company's debts.

## 8. Intangible assets

(1) Intangible assets as of December 31, 2018 and 2017 are as follows:

| December 31, 2018<br>(In millions of Korean Won) |             |                 |         |
|--------------------------------------------------|-------------|-----------------|---------|
|                                                  | Acquisition | Accumulated     | Book    |
|                                                  | price       | amortization(*) | amount  |
| Software                                         | ₩ 11,341    | ₩ (10,350 )     | ₩ 991   |
| Industrial property rights                       | 533         | (461 )          | 72      |
| Other intangible assets                          | 3,410       | (3,310 )        | 100     |
| Total                                            | ₩ 15,284    | ₩ (14,121 )     | ₩ 1,163 |

  

| December 31, 2017<br>(In millions of Korean Won) |             |                 |         |
|--------------------------------------------------|-------------|-----------------|---------|
|                                                  | Acquisition | Accumulated     | Book    |
|                                                  | price       | amortization(*) | amount  |
| Software                                         | ₩ 10,536    | ₩ (10,472 )     | ₩ 64    |
| Industrial property rights                       | 517         | (440 )          | 77      |
| Other intangible assets                          | 3,331       | (2,436 )        | 895     |
| Total                                            | ₩ 14,384    | ₩ (13,348 )     | ₩ 1,036 |

(\*)Includes accumulated impairment losses.

(2) Changes in intangible assets for the years ended December 31, 2018, 2017 and 2016 are as follows:

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2018

(In millions of Korean won)

|                         | Industrial |                    |         | Other                |         |
|-------------------------|------------|--------------------|---------|----------------------|---------|
|                         | Software   | property<br>rights | License | intangible<br>assets | Total   |
| Beginning of the year   | ₩ 64       | ₩ 77               | ₩ 843   | ₩ 52                 | ₩ 1,036 |
| Acquisitions            | 1,523      | 16                 | 78      | —                    | 1,617   |
| Amortization            | (597 )     | (21 )              | (241 )  | (9 )                 | (868 )  |
| Disposals               | —          | —                  | —       | —                    | —       |
| Impairment*             | —          | —                  | (623 )  | —                    | (623 )  |
| Translation differences | 1          | —                  | —       | —                    | 1       |
| End of the year         | ₩ 991      | ₩ 72               | ₩ 57    | ₩ 43                 | ₩ 1,163 |

2017

(In millions of Korean won)

|                         | Industrial |                    |         | Other                |         |
|-------------------------|------------|--------------------|---------|----------------------|---------|
|                         | Software   | property<br>rights | License | intangible<br>assets | Total   |
| Beginning of the year   | ₩ 115      | ₩ 89               | ₩ —     | ₩ 30                 | ₩ 234   |
| Acquisitions            | 36         | 12                 | 1,104   | 25                   | 1,177   |
| Amortization            | (87 )      | (24 )              | (31 )   | (3 )                 | (145 )  |
| Disposals               | —          | —                  | —       | —                    | —       |
| Impairment              | —          | —                  | (230 )  | —                    | (230 )  |
| Translation differences | —          | —                  | —       | —                    | —       |
| End of the year         | ₩ 64       | ₩ 77               | ₩ 843   | ₩ 52                 | ₩ 1,036 |

| 2016<br>(In millions of Korean won) |            |                 |         |                   |       |  |
|-------------------------------------|------------|-----------------|---------|-------------------|-------|--|
|                                     | Industrial |                 |         | Other             |       |  |
|                                     | Software   | property rights | License | intangible assets | Total |  |
| Beginning of the year               | ₩ 233      | ₩ 109           | ₩ —     | ₩ 50              | ₩ 392 |  |
| Acquisitions                        | 13         | 9               | —       | —                 | 22    |  |
| Amortization                        | (131)      | (24 )           | —       | (21 )             | (176) |  |
| Disposals                           | —          | —               | —       | —                 | —     |  |
| Impairment                          | —          | (5 )            | —       | —                 | (5 )  |  |
| Translation differences             | —          | —               | —       | 1                 | 1     |  |
| End of the year                     | ₩ 115      | ₩ 89            | ₩ —     | ₩ 30              | ₩ 234 |  |

(\*)The Company recognized an impairment loss of Won 623 million in the mobile segment as the carrying amount of the license exceeds its fair value less cost of disposal.

(3) Details of amortization of intangible assets for the years ended December 31, 2018, 2017 and 2016 are as follows

|                                              | 2018                        | 2017  | 2016  |
|----------------------------------------------|-----------------------------|-------|-------|
|                                              | (In millions of Korean won) |       |       |
| Cost of revenue                              | ₩ 251                       | ₩ 40  | ₩ 94  |
| Selling, general and administrative expenses | 581                         | 68    | 53    |
| Research and development                     | 36                          | 37    | 29    |
| Total                                        | ₩ 868                       | ₩ 145 | ₩ 176 |

## 9. Retirement benefits

For the years ended December 31, 2018, 2017 and 2016, the amount of Won 1,546 million, Won 1,219 million and Won 1,646 million was recognized as expenses related to the defined contribution plan.

## 10. Commitments and contingent liabilities

As of December 31, 2018, the Company has outstanding license agreements for Ragnarok Online with GungHo Online Entertainment, Inc. (Note 22) and other 5 companies internationally. Under the contractual terms set forth in these agreements, the Company granted non-transferable and exclusive right to maintain and operate Ragnarok Online and receives royalties ranging from 20% to 40% of each licensee's revenues.

In March 2016, Gravity and Shanghai The Dream Network Technology Co., Ltd. entered the agreement to grant an exclusive right to develop mobile games and web games in China based on the contents of Ragnarok Online and distribute such games for 5 years. Under the terms of this agreement, the Company has a right to collect royalties that exceed the minimum royalty guarantee.

The Company has signed game licensing agreements with a number of external game developers to secure exclusive rights to games developed by third parties. The license fees are capitalized within other intangible assets and minimum guarantees for royalties are included in other non-current assets. In relation to these licensing agreements, although not included in debt as of December 31, 2018 and 2017, the amounts of the Purchase obligations were Won 1,089 million and Won 1,436 million, respectively.

As of December 31, 2018, the Company has entered into lease agreements with its head office, its overseas branch, and its subsidiaries.

Future minimum lease payments as of December 31, 2018 and 2017 are as follows:

|                                    | December<br>31, 2018           | December<br>31, 2017 |
|------------------------------------|--------------------------------|----------------------|
|                                    | (In millions of<br>Korean won) |                      |
| Within a year                      | ₩ 2,592                        | ₩ 2,333              |
| Over a year and within three years | 2,738                          | 358                  |
| Total                              | ₩ 5,330                        | ₩ 2,691              |

Operating lease expenses incurred under these operating lease for the years ended December 31, 2018, 2017 and 2016 are Won 2,604 million, Won 2,205 and Won 1,921 million, respectively.

# 11. Assets and liabilities related to contracts with customers

(1) Assets and liabilities related to contracts with customers as of December 31, 2018 and January 1, 2018 are as follows:

|                                                             | December<br>31,<br>2018        | January<br>1,<br>2018 |
|-------------------------------------------------------------|--------------------------------|-----------------------|
|                                                             | (In millions of<br>Korean won) |                       |
| Incremental costs of obtaining a contract (Prepaid Expense) |                                |                       |
| Incremental costs of obtaining a contract                   | ₩ 2,036                        | ₩ 2,231               |

|                         |                    |
|-------------------------|--------------------|
| December<br>31,<br>2018 | January 1,<br>2018 |
|-------------------------|--------------------|

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(In millions of Korean  
won)

|                                         |          |          |
|-----------------------------------------|----------|----------|
| Contract liabilities (Deferred Revenue) |          |          |
| Subscription revenue                    | ₩ 12,017 | ₩ 12,409 |
| Licensing contract                      | 7,223    | 10,244   |
| Website & Application development       | 834      | 28       |
| Total                                   | ₩ 20,074 | ₩ 22,681 |

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(2) Changes in contract liabilities for the year ended December 31, 2018

Revenue recognized during the year, from the contract liability balance at January 1, 2018, was 15,998 million, 71% of the contract liability balance at January 1, 2018. There was no revenue recognized during the year ended December 31, 2018 related to the performance obligations satisfied in the year ended December 31, 2017.

(3) Unsatisfied performance obligations relate to the contracts with customers for the year ended December 31, 2018 are as follows:

|                                 |                       |
|---------------------------------|-----------------------|
|                                 | December<br>31,       |
|                                 | 2018                  |
|                                 | (In<br>millions<br>of |
|                                 | Korean<br>won)        |
| Subscription revenue            | ₩ 12,017              |
| Licensing contract              | 7,223                 |
| Website/Application development | 834                   |
| Total                           | ₩ 20,074              |

Management expects to recognize 82% (Won 16,476 million) of the transaction price allocated to the contract that has not been performed as of the end of the reporting period as revenue for the next reporting period. The remaining 18% (Won 3,598 million) will be recognized as revenue after the next fiscal year.

(4) Assets recognized from incremental costs of obtaining a contract as of December 31, 2018 and the amount of amortization recognized for the year ended December 31, 2018 are as follows:

|                                                  |                                      |
|--------------------------------------------------|--------------------------------------|
|                                                  | December<br>31,                      |
|                                                  | 2018                                 |
|                                                  | (In<br>millions<br>of Korean<br>won) |
| Incremental costs of obtaining a contract        | ₩ 2,036                              |
| Amortization costs recognized as cost of revenue | 2,231                                |

12. Capital

(1) Details of common shares as of December 31, 2018, 2017 and 2016 are as follows:

|                         | 2018                                 | 2017            | 2016            |
|-------------------------|--------------------------------------|-----------------|-----------------|
|                         | (In Korean won and number of shares) |                 |                 |
| Shares authorized       | 40,000,000                           | 40,000,000      | 40,000,000      |
| Par value               | ₩ 500                                | ₩ 500           | ₩ 500           |
| Number of shares issued | 6,948,900                            | 6,948,900       | 6,948,900       |
| Common shares           | ₩ 3,474,450,000                      | ₩ 3,474,450,000 | ₩ 3,474,450,000 |

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(2) Details of capital surplus as of December 31, 2018, 2017 and 2016 are as follows:

|                            | 2018                        | 2017     | 2016     |
|----------------------------|-----------------------------|----------|----------|
|                            | (In millions of Korean won) |          |          |
| Additional paid in capital | ₩ 25,335                    | ₩ 25,358 | ₩ 26,095 |
| Other capital surplus      | 1,806                       | 1,806    | 1,806    |
| Total                      | ₩ 27,141                    | ₩ 27,164 | ₩ 27,901 |

(3) Details of other components of equity as of December 31, 2018, 2017 and 2016 are as follows:

|                                                      | 2018                        | 2017   | 2016   |
|------------------------------------------------------|-----------------------------|--------|--------|
|                                                      | (In millions of Korean won) |        |        |
| Foreign currency translation adjustments, net of tax | ₩ 138                       | ₩ (40) | ₩ (77) |

(4) Details of retained earnings (accumulated deficit) as of December 31, 2018, 2017 and 2016 are as follows:

|                                                        | 2018                        | 2017     | 2016   |
|--------------------------------------------------------|-----------------------------|----------|--------|
|                                                        | (In millions of Korean won) |          |        |
| Unappropriated retained earnings (accumulated deficit) | ₩ 45,405                    | ₩ 13,962 | ₩ (94) |

(5) According to Gravity's Articles of Incorporation, Gravity may issue 2,000,000 shares of preferred stock without voting rights, and there are no preferred shares issued as of December 31, 2018, 2017 and 2016.

### 13. Classification of expenses by nature

Expenses classified by nature for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                                                | 2018                        | 2017     | 2016    |
|------------------------------------------------|-----------------------------|----------|---------|
|                                                | (In millions of Korean won) |          |         |
| Advertising expenses                           | ₩ 17,263                    | ₩ 12,525 | ₩ 2,411 |
| Fees and commissions                           | 195,173                     | 83,356   | 17,473  |
| Operating lease expenses                       | 2,604                       | 2,205    | 1,921   |
| Outsourcing expenses                           | 6,176                       | 5,189    | 3,230   |
| Salaries                                       | 23,137                      | 17,847   | 16,116  |
| Expenses related to defined contribution plans | 1,546                       | 1,219    | 1,646   |

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|                   |           |           |          |
|-------------------|-----------|-----------|----------|
| Employee benefits | 2,655     | 2,169     | 1,988    |
| Depreciation      | 545       | 375       | 340      |
| Amortization      | 868       | 145       | 176      |
| Other expenses    | 2,915     | 2,455     | 2,236    |
| Total(*)          | ₩ 252,882 | ₩ 127,485 | ₩ 47,537 |

\*Total cost of revenue, selling, general and administrative expenses, and research and development per the statement of comprehensive income.

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## 14. Selling, general and administrative expenses

Selling, general and administrative expenses for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                                                | 2018                        | 2017     | 2016     |
|------------------------------------------------|-----------------------------|----------|----------|
|                                                | (In millions of Korean won) |          |          |
| Advertising expenses                           | ₩ 17,263                    | ₩ 12,525 | ₩ 2,411  |
| Fees and commissions                           | 5,727                       | 6,594    | 5,955    |
| Operating lease expenses                       | 941                         | 686      | 627      |
| Salaries                                       | 7,080                       | 5,468    | 4,650    |
| Expenses related to defined contribution plans | 387                         | 357      | 440      |
| Employee benefits                              | 1,140                       | 919      | 845      |
| Depreciation                                   | 233                         | 150      | 99       |
| Amortization                                   | 581                         | 68       | 53       |
| Other expenses                                 | 1,468                       | 1,245    | 897      |
| Total                                          | ₩ 34,820                    | ₩ 28,012 | ₩ 15,977 |

## 15. Other income and expenses

(1) Other income for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                                            | 2018                        | 2017  | 2016 |
|--------------------------------------------|-----------------------------|-------|------|
|                                            | (In millions of Korean won) |       |      |
| Gain on disposal of property and equipment | ₩ 16                        | ₩ 2   | ₩ 2  |
| Miscellaneous gain                         | 106                         | 163   | 42   |
| Total                                      | ₩ 122                       | ₩ 165 | ₩ 44 |

(2) Other expenses for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                                                           | 2018                        | 2017 | 2016 |
|-----------------------------------------------------------|-----------------------------|------|------|
|                                                           | (In millions of Korean won) |      |      |
| Loss on retirement and disposal of property and equipment | ₩ 5                         | ₩ 37 | ₩ —  |
| Impairment loss on intangible assets                      | 623                         | 230  | 5    |
| Miscellaneous loss                                        | 14                          | 1    | 64   |

Total

₩ 642    ₩ 268    ₩ 69

## 16. Finance income and costs

Finance income and costs for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                                      | 2018                        | 2017    | 2016    |
|--------------------------------------|-----------------------------|---------|---------|
|                                      | (In millions of Korean won) |         |         |
| Finance income                       |                             |         |         |
| Interest income                      | ₩ 819                       | ₩ 554   | ₩ 522   |
| Unrealized foreign currency gain     | 81                          | 288     | 269     |
| Gain on foreign currency transaction | 1,173                       | 1,033   | 875     |
| Total                                | ₩ 2,073                     | ₩ 1,875 | ₩ 1,666 |
| Finance costs                        |                             |         |         |
| Unrealized foreign currency loss     | ₩ 99                        | ₩ 671   | ₩ 765   |
| Loss on foreign currency transaction | 891                         | 768     | 908     |
| Others                               | 12                          | 13      | —       |
| Total                                | ₩ 1,002                     | ₩ 1,452 | ₩ 1,673 |

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## 17. Income Taxes

(1) The details of income tax expense for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                                | 2018                        | 2017    | 2016    |
|--------------------------------|-----------------------------|---------|---------|
|                                | (In millions of Korean won) |         |         |
| Current tax expense            | ₩ 7,430                     | ₩ 4,180 | ₩ 3,240 |
| Deferred tax expense (benefit) | (4,377)                     | (3,036) | —       |
| Income tax expense             | ₩ 3,053                     | ₩ 1,144 | ₩ 3,240 |

(2) Reconciliation between actual income tax expense and the amount computed by applying applicable tax rate to profit before tax for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                                                             | 2018                        | 2017     | 2016    |
|-------------------------------------------------------------|-----------------------------|----------|---------|
|                                                             | (In millions of Korean won) |          |         |
| Profit before income tax                                    | ₩ 34,439                    | ₩ 14,458 | ₩ 3,827 |
| Income tax using the statutory tax rate of each country     | 8,994                       | 3,232    | 700     |
| Adjustments                                                 |                             |          |         |
| Non-deductible expenses                                     | 62                          | 136      | 37      |
| Foreign taxes paid but not utilized as tax credit           | 5,196                       | 3,963    | 2,819   |
| Utilization of previously unrecognized deferred tax asset   | (5,347 )                    | (3,307 ) | —       |
| Reassessment of previously unrecognized deferred tax assets | (6,265 )                    | (3,036 ) | —       |
| Effect of change foreign currency exchange rate             | (221 )                      | 495      | (114 )  |
| Others                                                      | 634                         | (339 )   | (202 )  |
| Total adjustments                                           | (5,941 )                    | (2,088 ) | 2,540   |
| Income tax expense                                          | ₩ 3,053                     | ₩ 1,144  | ₩ 3,240 |
| Effective tax rate                                          | 9 %                         | 8 %      | 85 %    |

The weighted average applicable tax rate of the Company was 24.4% (2017: 22.4%). The increase is mainly due to a change in the taxable income of the consolidated entities in the respective countries.

(3) Changes in deferred income tax assets (liabilities) recognized in the statements of financial position for the years ended December 31, 2018 and 2017 are as follows:

|                                                 | December 31, 2018           |            |         | December 31, 2017           |            |          |
|-------------------------------------------------|-----------------------------|------------|---------|-----------------------------|------------|----------|
|                                                 | Beginning                   | Increase   | Ending  | Beginning                   | Increase   | Ending   |
|                                                 | balance                     | (decrease) | balance | balance                     | (decrease) | balance  |
|                                                 | (In millions of Korean won) |            |         | (In millions of Korean won) |            |          |
| Deferred income tax on temporary differences    |                             |            |         |                             |            |          |
| Deferred tax assets                             |                             |            |         |                             |            |          |
| Intangible assets                               | ₩ 89                        | ₩ 155      | ₩ 244   | ₩ 198                       | ₩ (109 )   | ₩ 89     |
| Other non-current assets                        | 49                          | (41 )      | 8       | 110                         | (61 )      | 49       |
| Accounts payables                               | 1,440                       | 3,260      | 4,700   | 590                         | 850        | 1,440    |
| Accrued expenses                                | 88                          | 16         | 104     | 51                          | 37         | 88       |
| Deferred revenue                                | 812                         | 126        | 938     | (20 )                       | 832        | 812      |
| Allowance for doubtful account                  | 217                         | 40         | 257     | 271                         | (54 )      | 217      |
| Other non-current liabilities                   | 40                          | 6          | 46      | 32                          | 8          | 40       |
| Investments in subsidiaries                     | 2,747                       | (2,747 )   | —       | 2,747                       | —          | 2,747    |
| Others                                          | 28                          | (45 )      | (17 )   | 68                          | (40 )      | 28       |
| Deferred tax liabilities                        |                             |            |         |                             |            |          |
| Foreign taxes paid                              | (13 )                       | 38         | 25      | (13 )                       | —          | (13 )    |
| Property and equipment                          | (32 )                       | 13         | (19 )   | 38                          | (70 )      | (32 )    |
| Sub Total                                       | 5,465                       | 821        | 6,286   | 4,072                       | 1,393      | 5,465    |
| Deferred tax asset for tax losses carryforwards | 14,002                      | (10,133)   | 3,869   | 20,662                      | (6,660 )   | 14,002   |
| Deferred tax asset for tax credits              | 8,090                       | (2,406 )   | 5,684   | 6,697                       | 1,393      | 8,090    |
| Unrecognized deferred tax assets                | (24,521)                    | 16,095     | (8,426) | (31,431)                    | 6,910      | (24,521) |
| Deferred tax assets                             | ₩ 3,036                     | ₩ 4,377    | ₩ 7,413 | ₩ —                         | ₩ 3,036    | ₩ 3,036  |

Unrecognized deferred tax assets are reassessed by taking into consideration various factors such as the Company's performance, the overall economic environment and industry outlook, expected future earnings and tax credits. As of December 31, 2018, the Company has recognized deferred tax assets related to temporary differences, tax loss carryforward and tax credit carryforwards, which can be utilized based on the likelihood of future taxable income. This amount may change if the estimate of future taxable income changes.

(4) Details of unused tax loss carryforwards and unused tax credit carryforwards that are not recognized as deferred income tax assets as of December 31, 2018 are as follows:

| Year of expiration | Unused loss<br>carryforwards | Unused tax<br>credit<br>carryforwards |
|--------------------|------------------------------|---------------------------------------|
| 2019               | ₩ —                          | ₩ 298                                 |
| 2020               | —                            | 212                                   |
| 2021               | —                            | 175                                   |
| 2022               | —                            | 163                                   |
| 2023               | 1,043                        | 521                                   |
| After 2023         | 7,678                        | —                                     |
| Total              | ₩ 8,721                      | ₩ 1,369                               |

Temporary differences of Won 18,453 million, and Won 10,325 million are not recognized as deferred income tax assets as of December 31, 2018 and 2017. Temporary difference of Won 25,536 million, and Won 13,052 relating to investments in subsidiaries are not recognized as deferred tax assets as of December 31, 2018, and 2017, respectively, as they are only realized in the event of disposal of the subsidiary. No such disposal is expected in the foreseeable future.

## 18. Earnings per Share

Basic earnings per share is calculated by dividing the profit attributable to owners of the Parent by the weighted average number of common shares outstanding each year.

### (1) Basic earnings per share

|                                                      | 2018                        | 2017      | 2016      |
|------------------------------------------------------|-----------------------------|-----------|-----------|
|                                                      | (In millions of Korean won, |           |           |
|                                                      | except per share data)      |           |           |
| Profit attributable to owners of the Parent          | ₩ 31,443                    | ₩ 13,319  | ₩ 657     |
| Weighted average outstanding shares of common shares | 6,948,900                   | 6,948,900 | 6,948,900 |
| Basic earnings per share                             | ₩ 4,525                     | ₩ 1,917   | ₩ 95      |

### (2) Diluted earnings per share

As of and for the years ended December 31, 2018, 2017 and 2016, the Company does not have dilutive potential ordinary shares outstanding. Accordingly, the diluted earnings per share for the years ended December 31, 2018, 2017 and 2016 are the same as the basic earnings per share.

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## 19. Statements of cash flows

(1) Cash generated from operations for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                                                           | 2018                        | 2017     | 2016    |
|-----------------------------------------------------------|-----------------------------|----------|---------|
|                                                           | (In millions of Korean won) |          |         |
| Profit for the year                                       | ₩ 31,386                    | ₩ 13,314 | ₩ 587   |
| Depreciation expense                                      | 545                         | 375      | 340     |
| Amortization expense                                      | 868                         | 145      | 176     |
| Bad debt expenses                                         | 151                         | 74       | 1       |
| Unrealized foreign currency loss                          | 99                          | 671      | 765     |
| Loss on retirement and disposal of property and equipment | 5                           | 37       | —       |
| Impairment losses on intangible assets                    | 623                         | 230      | 5       |
| Post-employment benefit expense                           | 50                          | 164      | (19 )   |
| Income tax expense                                        | 3,053                       | 1,144    | 3,240   |
| Unrealized foreign currency gain                          | (81 )                       | (288 )   | (269 )  |
| Interest income                                           | (819 )                      | (554 )   | (522 )  |
| Gain on disposal of property and equipment                | (16 )                       | (2 )     | (2 )    |
| Change in accounts receivables                            | (18,573)                    | (27,786) | (6,363) |
| Change in other receivables                               | 406                         | 12       | (445 )  |
| Change in prepaid expenses                                | 544                         | (1,390 ) | (186 )  |
| Change in other current assets                            | 192                         | (400 )   | 259     |
| Change in other non-current assets                        | (1,137 )                    | (449 )   | (825 )  |
| Change in accounts payables                               | 27,319                      | 35,046   | 1,709   |
| Change in deferred revenue                                | (2,707 )                    | 1,980    | 1,304   |
| Change in withholdings                                    | 580                         | 1,239    | 11      |
| Change in accrued expenses                                | (7 )                        | 187      | (85 )   |
| Change in other current liabilities                       | (13 )                       | 68       | (5 )    |
| Change in long-term deferred revenue                      | 100                         | 4,111    | 5,537   |
| Change in other non-current liabilities                   | —                           | 261      | —       |
| Total                                                     | ₩ 42,571                    | ₩ 28,189 | ₩ 5,213 |

(2) Significant non-cash transactions for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                                                                        | 2018                        | 2017 | 2016 |
|------------------------------------------------------------------------|-----------------------------|------|------|
|                                                                        | (In millions of Korean won) |      |      |
| Reclassification of other non-current assets to property and equipment | ₩—                          | ₩ —  | ₩ 16 |
| Reclassification of other non-current assets to intangible assets      | —                           | 12   | 9    |
| Increase of accounts payables due to software purchasing               | 226                         | —    | —    |

20. Financial risk management

The Company's activities expose it to a variety of financial risks: market risk (including currency risk, fair value interest rate risk, cash flow interest rate risk and price risk), credit risk and liquidity risk. The Company's overall risk management program focuses on the unpredictability of financial markets and seeks to minimize any adverse effects on the financial performance of the Company.

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## (1) Capital risk management

The Company's capital management aims to maximize shareholder profits by minimizing capital procurement costs while maintaining the ability to continue as a corporation and to maintain a proper capital structure. The Company manages its capital on the basis of its debt ratio, which is calculated by dividing the total liabilities by total equity. The Company's debt-to-equity ratio as of December 31, 2018 and 2017 are as follows:

|                      | December<br>31,<br><br>2018    | December<br>31,<br><br>2017 |
|----------------------|--------------------------------|-----------------------------|
|                      | (In millions of<br>Korean won) |                             |
| Total liabilities    | 97,622                         | 71,885                      |
| Total equity         | ₩ 75,552                       | ₩ 43,998                    |
| Debt-to-equity ratio | 129 %                          | 163 %                       |

## (2) Market risk

## Foreign exchange risk

The amount of monetary assets and liabilities denominated in foreign currencies as of the end of the reporting period is as follows:

|       | December 31, 2018          |             |                                |             |
|-------|----------------------------|-------------|--------------------------------|-------------|
|       | Financial                  | Financial   | Financial                      | Financial   |
|       | assets                     | liabilities | assets                         | liabilities |
|       | (In each foreign currency) |             | (In millions of<br>Korean won) |             |
| USD   | 9,623,496                  | 7,486,441   | ₩ 10,761                       | ₩ 8,373     |
| JPY   | 103,945,453                | 1,042,657   | 1,053                          | 11          |
| EUR   | 359,772                    | —           | 460                            | —           |
| IDR   | 172,822,025                | 3,098,944   | 13                             | —           |
| THB   | 34,633                     | 173,389     | 1                              | 6           |
| TWD   | 36,311,172                 | 6,597,223   | 1,328                          | 241         |
| VND   | 9,270,000                  | 3,243,600   | 1                              | —           |
| HKD   | 2,731                      | —           | —                              | —           |
| Total |                            |             | ₩ 13,617                       | ₩ 8,631     |

|  | December 31, 2017          |             |           |             |
|--|----------------------------|-------------|-----------|-------------|
|  | Financial                  | Financial   | Financial | Financial   |
|  | assets                     | liabilities | assets    | liabilities |
|  | (In each foreign currency) |             |           |             |

| (In millions of<br>Korean won) |             |            |                     |                     |
|--------------------------------|-------------|------------|---------------------|---------------------|
| USD                            | 33,614,259  | 31,553,072 | <del>₩</del> 36,026 | <del>₩</del> 33,815 |
| JPY                            | 93,528,526  | 294,217    | 888                 | 3                   |
| BRL                            | 161,846     | —          | 52                  | —                   |
| EUR                            | 354,019     | —          | 453                 | —                   |
| IDR                            | 901,342,531 | 17,291     | 71                  | —                   |
| THB                            | 334,038     | 35,317     | 11                  | 1                   |
| TWD                            | 147,972,077 | 29,537,654 | 5,315               | 1,061               |
| VND                            | 84,010,000  | 22,830,100 | 397                 | 107                 |
| HKD                            | 304,033     | 4,967      | 43                  | 1                   |
| Total                          |             |            | <del>₩</del> 43,256 | <del>₩</del> 34,988 |

The Company measures foreign exchange risk as a 10% fluctuation in the exchange rate of each foreign currency, which reflects the management's assessment of the risk of exchange rate fluctuation that can be reasonably occur. The impact of a 10% fluctuation in foreign currency exchange rates on the Company's monetary assets and liabilities as of December 31, 2018, and 2017 are as follows

|                             | December 31, 2018 |              | December 31, 2017 |              |
|-----------------------------|-------------------|--------------|-------------------|--------------|
|                             | 10% Increase      | 10% Decrease | 10% Increase      | 10% Decrease |
| (In millions of Korean won) |                   |              |                   |              |
| USD                         | ₩ 239             | ₩ (239 )     | ₩ 221             | ₩ (221 )     |
| JPY                         | 104               | (104 )       | 88                | (88 )        |
| Others                      | 156               | (156 )       | 517               | (517 )       |
| Total                       | ₩ 499             | ₩ (499 )     | ₩ 826             | ₩ (826 )     |

The sensitivity analysis is based on monetary assets and liabilities denominated in foreign currencies other than the functional currency as of the end of the reporting period.

#### Interest rate risk

As of the end of the reporting period, there are no borrowings under variable interest rate conditions.

#### Price risk

There are no assets and liabilities exposed to price risk as of the end of the reporting period.

#### (3) Credit risk

Credit risk arises from normal trading and investing activities and occurs when a customer or a counterparty fails to comply with the terms of the contract. In order to manage these credit risks, the Company regularly evaluate the creditworthiness of our customers based on their financial condition, past experience and other factors.

The carrying amount of a financial asset represents the maximum exposure to credit risk. The maximum exposure to credit risk of the Company as of December 31, 2018 and 2017 are as follows

|                                    | December 31, 2018 | December 31, 2017 |
|------------------------------------|-------------------|-------------------|
| (In millions of Korean won)        |                   |                   |
| Cash and cash equivalents          | ₩ 86,051          | ₩ 39,095          |
| Short-term financial instruments   | 9,500             | 22,500            |
| Accounts receivable                | 60,664            | 42,168            |
| Other receivable                   | 255               | 698               |
| Other current assets               | 191               | 155               |
| Other non-current financial assets | 1,494             | 1,394             |
| Total                              | ₩ 158,155         | ₩ 106,010         |

Cash and cash equivalents and short-term financial instruments are deposited to financial institutions with strong credit rating. Accounts receivables are mainly due from payment processing companies, platform service providers and major game licensees, which resulted in low level of credit risk.

(4) Liquidity risk

Liquidity risk management includes the maintenance of sufficient cash and marketable securities, the availability of funds from appropriately committed credit lines, and the ability to settle market positions. The following table summarizes the financial liabilities of the Company by maturity according to the remaining period from the end of the reporting period to the contractual maturity date.

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| December 31, 2018           |           |            |                  |          |
|-----------------------------|-----------|------------|------------------|----------|
|                             | Less than | 3 months ~ | More than 1 year | Total    |
|                             | 3 months  | 1 year     | year             |          |
| (In millions of Korean won) |           |            |                  |          |
| Accounts payable            | ₩ 70,381  | ₩ 1,547    | ₩ —              | ₩ 71,928 |
| Accrued expenses            | 1,031     | —          | —                | 1,031    |
| Other liabilities           | —         | 113        | 34               | 147      |
| Total                       | ₩ 71,412  | ₩ 1,660    | ₩ 34             | ₩ 73,106 |

| December 31, 2017           |           |            |                  |          |
|-----------------------------|-----------|------------|------------------|----------|
|                             | Less than | 3 months ~ | More than 1 year | Total    |
|                             | 3 months  | 1 year     | year             |          |
| (In millions of Korean won) |           |            |                  |          |
| Accounts payable            | ₩ 42,790  | ₩ 1,620    | ₩ —              | ₩ 44,410 |
| Accrued expenses            | 322       | —          | —                | 322      |
| Other liabilities           | —         | 107        | 141              | 248      |
| Total                       | ₩ 43,112  | ₩ 1,727    | ₩ 141            | ₩ 44,980 |

The cash flows above are not discounted and the amount due within 12 months is the same as the carrying amount since the effect of the discount is not material.

## 21. Segment information

### (1) The Company's operating segments

Gravity determines the operating segments of the Company by establishing strategic decisions. Chief operating decision maker ("CODM") reviews operating profit by each segment in order to make decisions regarding the resources to be allocated to the segment and to evaluate the performance of the segment.

The reporting entity of the Company is in line with the organizational structure and CODM's review of operations, and the reportable segments as of the end of the reporting period are mobile, online, and others.

The Company assesses the performance of its operating segments based on its operating profit or loss, which does not differ from operating profit reported on the Statement of Comprehensive Income except for inter-segment transactions. Total assets and liabilities for each segment are not reported to CODM. The following information is available for each business segment for the years ended December 31, 2018, 2017 and 2016.

| 2018    |              |           |
|---------|--------------|-----------|
| Revenue | Depreciation | Operating |

|                                | Amortization profit(*2)     |         |          |
|--------------------------------|-----------------------------|---------|----------|
|                                | (In millions of Korean won) |         |          |
| Online                         | ₩ 41,288                    | ₩ 238   | ₩ 4,286  |
| Mobile                         | 257,364                     | 473     | 24,795   |
| Others                         | 9,526                       | 715     | 1,086    |
| Sub total                      | 308,178                     | 1,426   | 30,167   |
| Inter-segment eliminations(*1) | (21,408 )                   | (12 )   | 3,201    |
| Total                          | ₩ 286,770                   | ₩ 1,414 | ₩ 33,368 |

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| 2017                           |                             |              |                  |
|--------------------------------|-----------------------------|--------------|------------------|
|                                |                             | Depreciation | Operating        |
|                                | Revenue                     | Amortization | profit(loss)(*2) |
|                                | (In millions of Korean won) |              |                  |
| Online                         | ₩ 53,790                    | ₩ 222        | ₩ 14,536         |
| Mobile                         | 87,194                      | 268          | (2,476 )         |
| Others                         | 7,532                       | 36           | 993              |
| Sub total                      | 148,516                     | 526          | 13,053           |
| Inter-segment eliminations(*1) | (6,893 )                    | (6 )         | 982              |
| Total                          | ₩ 141,623                   | ₩ 520        | ₩ 14,035         |

| 2016                           |                             |              |                  |
|--------------------------------|-----------------------------|--------------|------------------|
|                                |                             | Depreciation | Operating        |
|                                | Revenue                     | Amortization | profit(loss)(*2) |
|                                | (In millions of Korean won) |              |                  |
| Online                         | ₩ 36,354                    | ₩ 243        | ₩ 11,147         |
| Mobile                         | 14,003                      | 260          | (7,515 )         |
| Others                         | 4,292                       | 79           | 301              |
| Sub total                      | 54,649                      | 582          | 3,933            |
| Inter-segment eliminations(*1) | (3,253 )                    | (66 )        | (99 )            |
| Total                          | ₩ 51,396                    | ₩ 516        | ₩ 3,834          |

(\* 1) Inter-segment eliminations are reflected as adjustments.

(\* 2) Other profit or loss items that do not constitute operating profit (loss) are not separately disclosed because they are not reviewed by the chief operating decision maker by operating segment.

(2) Revenue by geographical regions

Revenue from external customers by country for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                          | 2018                        | 2017      | 2016     |
|--------------------------|-----------------------------|-----------|----------|
|                          | (In millions of Korean won) |           |          |
| Korea                    | ₩ 80,814                    | ₩ 28,708  | ₩ 14,770 |
| Taiwan                   | 98,210                      | 76,121    | 16,517   |
| Japan                    | 9,767                       | 9,491     | 9,274    |
| United States of America | 10,572                      | 7,774     | 5,130    |
| Thailand                 | 43,846                      | 6,569     | 2,262    |
| Philippines              | 15,539                      | 883       | —        |
| Indonesia                | 9,359                       | 1,075     | 110      |
| Other                    | 18,663                      | 11,002    | 3,333    |
| Total                    | ₩ 286,770                   | ₩ 141,623 | ₩ 51,396 |

(\*) Revenue was attributed to the country based on the customer's location.

(\*) Inter-segment eliminations are reflected

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Revenue of mobile games and applications from external customers by country for the years ended December 31, 2018, 2017 and 2016 are as follows:

|                 | 2018                        | 2017     | 2016     |
|-----------------|-----------------------------|----------|----------|
|                 | (In millions of Korean won) |          |          |
| Taiwan          | ₩ 83,770                    | ₩ 49,644 | ₩ 1,203  |
| Korea           | 65,963                      | 17,158   | 6,506    |
| Thailand        | 42,159                      | 4,274    | 3        |
| The Philippines | 14,189                      | —        | —        |
| Indonesia       | 8,850                       | 364      | —        |
| United States   | 6,736                       | 2,634    | 1,204    |
| China           | 2,864                       | 3,848    | 2,098    |
| Others          | 14,958                      | 4,702    | 1,027    |
| Total           | ₩ 239,489                   | ₩ 82,624 | ₩ 12,041 |

(\*) Revenue was attributed to the country based on the customer's location.

(\*) Inter-segment eliminations are reflected.

Non-current assets by geographical regions for the years ended December 31, 2018, 2017 and 2016 are as follows:

|          | December 31, 2018           | December 31, 2017 | December 31, 2016 |
|----------|-----------------------------|-------------------|-------------------|
|          | (In millions of Korean won) |                   |                   |
| Domestic | ₩ 3,054                     | ₩ 2,114           | ₩ 1,037           |
| Overseas | 1,045                       | 468               | 149               |
| Total    | ₩ 4,099                     | ₩ 2,582           | ₩ 1,186           |

(3) No external customers accounted for more than 10% of consolidated revenue for the years ended December 31, 2018, 2017 and 2016.

## 22. Transactions with related parties

(1) List of related party of the Company as of December 31, 2018, 2017 and 2016, is as follows:

The related parties of the Company are entities and individuals capable of exercising control or significant influence over the Company. Related parties include GungHo Online Entertainment, Inc.(the largest shareholder of Gravity through its 59.31% common shares) and its subsidiaries, members of board of directors, and executives with strategic responsibilities and their immediate families.

(2) Major balances of receivables from and payables to related parties

Details of receivables from and payables to related parties as of December 31, 2018 and 2017 are as follows:

|                                |                                    | December 31, 2018           |          | December 31, 2017 |          |
|--------------------------------|------------------------------------|-----------------------------|----------|-------------------|----------|
|                                |                                    | (In millions of Korean won) |          |                   |          |
| Related parties classification | Entity                             | Receivable                  | Payables | Receivable        | Payables |
| Parent company                 | Gung-Ho Online Entertainment, Inc. | ₩ 1,053                     | ₩ 3      | ₩ 775             | ₩ 3      |

### (3) Transactions such as sales and purchases

The details of sales and purchases with related parties for the years ended December 31, 2018, 2017 and 2016 are as follows

| Related parties classification | Entity                             | 2018     |          | 2017     |          | 2016     |          |
|--------------------------------|------------------------------------|----------|----------|----------|----------|----------|----------|
|                                |                                    | Sales    | Purchase | Sales    | Purchase | Sales    | Purchase |
| Parent company                 | Gung-Ho Online Entertainment, Inc. | ₩ 10,516 | ₩ 3      | ₩ 10,529 | ₩ 36     | ₩ 10,667 | ₩ 36     |
| Other related company          | ACQUIRE Corp(*1)                   | —        | —        | —        | —        | —        | 3        |
| Total                          |                                    | ₩ 10,516 | ₩ 3      | ₩ 10,529 | ₩ 36     | ₩ 10,667 | ₩ 39     |

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(\*1) ACQUIRE Corp. is a subsidiary of GungHo Online Entertainment, Inc.

(4) Fund transactions with related parties

No fund transactions were made with related parties for the years ended December 31, 2018, 2017 and 2016.

(5) Compensation for key management personnel

The compensation for the key management personnel (registered directors), for the years ended December 31, 2018, 2017 and 2016 are as follows.

|        | 2018                        | 2017  | 2016  |
|--------|-----------------------------|-------|-------|
|        | (In millions of Korean won) |       |       |
| Salary | ₩ 690                       | ₩ 629 | ₩ 428 |

## 23. Subsequent events

On January 29, 2019, the Company established Gravity Game Tech. Co., Ltd, a wholly owned subsidiary in Thailand. And on February 7, 2019, the Company established PT. Gravity Game Link Co., Ltd, a joint venture in Indonesia.