Taxation

In 2013, the effective statutory corporate income tax rate applicable to us was 11.0% (including local income surtax) for the first 200 million of our taxable income, 22.0% (including local income surtax) for our taxable income between 200 million and 20 billion and 24.2% (including local income surtax) for our taxable income in excess of 20 billion.

Tax Credits

We are entitled to a number of tax credits relating to certain investments in technology and human resources development. For example, under the Special Tax Treatment Control Law, we are entitled to a tax credit of 5% for our capital investments made on or before December 31, 2011.

Tax credits not utilized in the fiscal year during which the relevant investment was made may be carried forward over the next five years in the case of capital investments and five years in the case of investments relating to technology and human resources development. As of December 31, 2013, we had available deferred tax assets related to these credits of 538 billion (US$510 million), which may be utilized against future income tax liabilities through 2018. In addition, we also had unused tax credit carryforwards of 529 billion (US$501 million) as of December 31, 2013 for which no deferred tax asset was recognized.

Item 5.C. ***Research and Development, Patents and Licenses, etc.***

Research and Development

The display panel industry is subject to rapid technological changes. We believe that effective research and development is essential to maintaining our position as one of the industry's leading technology innovators. Our research and development related expenditures amounted to 1,314 billion in 2011, 1,373 billion in 2012 and 1,675 billion (US$1,587 million) in 2013, representing 5.4% of our revenue in 2011, 4.7% in 2012 and 6.2% in 2013.

We believe that the future trends for display products will include the widespread use of affordable large-sized flat panel products with higher performance qualities and the use of different types of display products for a variety of purposes, such as using flexible display panels in a range of products, using large-sized display panels for public display or advertising, and using small-sized panels for mobile devices. To meet the demands of the future trends, we have formulated a long-term research and development strategy aimed at enhancing the process, device and design aspects of the existing products and diversifying the use of display panels as new opportunities arise with the development of communication systems and information technology. The following are examples of products and technologies that have been developed through our research and development activities in recent years:

- In 2011, we developed a 4.5-inch HD TFT-LCD panel that utilized AH-IPS technology, which allows for wide viewing angles and high resolution imagery for use in 4G smartphones. In addition, we became the first display panel manufacturer to develop a 55-inch OLED panel that utilized WRGB OLED technology, for which we were awarded the industrial bronze medal by the Korea Invention Promotion Association. We also developed a 55-inch Full HD TFT-LCD panel with a super narrow bezel of just 5.3 mm for use in public displays. The super narrow bezel allows the public displays to be displayed alongside each other to create a large 165-inch multi-screen public display capable of producing large near seamless imagery.
- In 2012, we developed an 84-inch Ultra HD TFT-LCD panel, which has a substantially higher screen resolution compared to Full HD panels and may be used in classrooms as interactive whiteboards and in home theaters. In addition, we developed a 55-inch Full HD OLED panel for retail sales with a thickness of just 4 millimeters, wide viewing angles and near-infinite contrast. We also developed a 29-inch ultra-wide TFT-LCD panel with a 21:9 screen aspect ratio to be used in desktop monitors and all-in-one personal computers. In addition, we also developed a 5-inch product with 1920 x 1080 Full HD resolution at 440 pixels-per-inch. We developed 32-inch, 42-inch, 47-inch and 55-inch super narrow bezel TFT-LCD panels that are borderless on three sides and 42-inch, 47-inch, 55-inch and 60-inch super narrow bezel TFT-LCD panels that are borderless on all four sides.

- In 2013, we developed and unveiled the world's first 55-inch curved 3D Full HD OLED television panel and a 77-inch curved Ultra HD OLED television panel. In addition, we developed a 105-inch Ultra HD curved TFT-LCD television panel with a 21:9 screen aspect ratio, which allows for an unprecedented level of viewer immersion. We also collaborated with Intel Corporation, or Intel, and was the first in the world to incorporate Intel's Wireless Display, or WiDi, technology in a display panel with the development of our 23.8-inch TFT-LCD monitor panel. WiDi technology allows viewers to seamlessly stream content from one display device, such as a notebook computer or smartphone, wirelessly to a display device with WiDi technology without the need for any intermediary device. With respect to smartphones, we developed the world's first 5.5-inch quad high-definition panel, which has four times the resolution of a conventional HD panel while being significantly brighter and thinner (only 1.22 mm). Furthermore, we developed and commenced mass production of a flexible plastic OLED panel for smartphones. The plastic substrates allow the panel to be bendable and virtually shatterproof while being much lighter and thinner compared to panels with conventional glass substrates.

As the product life cycle of display panels using certain of the existing TFT-LCD technology is approaching maturity, we plan to further focus on OLED and other newer display technologies, while also exploring new growth opportunities in the application of display panels, such as in tablet computers, smartphones, public displays and automotive displays.

In order to maintain our position as one of the industry's technology leaders, we believe it is important not only to increase direct spending on research and development, but also to manage our research and development capability effectively in order to successfully implement our long-term strategy. In connection with our efforts to consolidate our research and development efforts for next-generation display technologies, we opened the R&D Center in Paju, Korea in April 2012, which houses approximately 2,700 engineers, researchers, designers, technicians and support personnel.

We complement our in-house research and development capability with collaborations with universities and other third parties. For example, we provide project-based funding to both domestic and overseas universities as a means to recruit promising engineering students and to research and develop new technologies. In July 2012, we entered into an agreement with Seoul National University to establish the LGD-SNU Cooperation Center within the university's Research Institute of Advanced Materials to conduct research into display panel technologies, including OLED technology. We also enter into joint research and development agreements from time to time with third parties for the development of technologies in specific fields. In addition, we belong to several display industry consortia, and we receive annual government funding to support our research and development efforts. In addition to these collaborations, we may form strategic technology alliances with the research arms of LG Electronics, as well as suppliers and equipment makers in "cluster" industries, that is, industries related to the TFT-LCD industry, in order to enhance our capability to develop new technology.

We have developed a research and development management system whereby we encourage our engineers to propose new projects freely and to implement rigorous evaluation criteria for each stage of project development. We select our projects primarily based on their feasibility and alignment with our research and development strategy, and we review the progress of all ongoing projects on a quarterly basis. As of December 31, 2013, we employed approximately 4,400 engineers, researchers, designers, technicians and support personnel in connection with our research and development activities.

While we primarily rely on our own capacity for the development of new technologies in the display panel design and manufacturing process, we rely on third parties for certain key technologies to enhance our technology leadership, as further described in "—Intellectual Property" below.

Intellectual Property

Overview

Our business has benefited from our patent portfolio, which includes patents for display technologies, manufacturing processes, products and applications related to the production of TFT-LCD and OLED panels. We hold a large number of patents in Korea and in other countries, including in the United States, China, Japan, Germany, France, Great Britain and Taiwan. These patents will expire at various dates upon the expiration of their respective terms ranging from 2014 to 2033. In March 2014, we formed Unified Innovative Technology, LLC in the United States, a limited liability company solely owned by us for the purpose of patent portfolio management.