

Risk Management

Impact of inflation, interest and exchange rate fluctuations, and preventive measures:

1. Impact of interest rate fluctuations

Interest rate fluctuations had a minimal impact on TWM's 2017 short-term bank borrowings, as interest rates remained low and stable. The Company has mid-term loan agreements with banks to lock in mid-to-long-term interest rates and minimize impacts from interest rate fluctuations.

2. Impact of exchange rate fluctuations

Only some of the Company's payments are denominated in euros and US dollars. To minimize the impact from foreign exchange rate fluctuations, the Company hedges risks through foreign exchange spot market transactions. Overall, exchange rate fluctuations had a minimal impact on the Company.

3. Impact of inflation

Inflation had a minimal impact on the Company's operating performance in 2017 up to the publication date in 2018.

Investment policy and reasons for gains & losses for high-risk/high-leverage financial products, derivatives, loans to others and guarantees of debts:

1. The Company was not involved in any high-risk, high-leverage financial investment.
2. The Company passed the "Rules and Procedures on Lending and Making Endorsement/Guarantees" to supervise its financing and endorsement activities. As the counterparties in its loans and guarantees are all its subsidiaries, there is minimal operating risk.
3. Derivatives transaction: None.

Future research and development plans

| Project name | Objective | Completion date |
|---|--|-----------------|
| Customer micropayment credit model | Use machine learning algorithms to build a prediction model that can more accurately estimate customers' credit limit so as to reduce overall bad debt. | Nov. 2018 |
| Internet of Things billing system | Build an IoT SIM card connectivity management system and B2B model of the exclusive billing system. | Dec. 2018 |
| M+ Messenger | Integrate peer-to-peer payments and business card management to enrich communication experience. | Sept. 2018 |
| TAMedia - Mobile advertisement platform | Provide new types of video advertising and improve advertising performance by integrating third party data into data analysis. | Sept. 2018 |
| myVideo | Enhance big-screen player solutions. Provide multiple video promotion and recommendation mechanisms. Support Dolby to enrich viewing experience. | Sept. 2018 |
| Mobile payment | Incorporate international payment association's HCE platform to internationalize TWM's Wali service. Integrate membership, loyalty points and vouchers from convenience stores to increase Wali's penetration rate. | Sept. 2018 |
| myBook | Provide audio feature to enhance reading experience. Cooperate with other companies to enlarge user base. Apply data analytics to provide content, categories and articles recommendation. | Sept. 2018 |
| MyMusic | Strengthen member-get-member scheme to encourage existing members to solicit new members. Offer customers Apple and Google in-app purchases for seamless payment process. Provide personalization functions to retain users. | Sept. 2018 |

Regulatory changes and developments

1. Revision of digital convergence laws and regulations

(1) Status

In response to the development of digital convergence services, the National Communications Commission (NCC) drafted two bills – the Digital Communication Broadcasting Act and the Telecommunications Management Act. The Executive Yuan approved the bills on November 16, 2017, and submitted them to the Legislative Yuan. The bills passed their first reading on December 1, 2017 and were referred to the legislature's Transportation Committee for review.

(2) Countermeasures

The Company is closely monitoring the progress of the two bills and continues to communicate with government authorities on related policies and regulations to ensure a favorable regulatory environment for the industry's development.

2. 3G user rights protection plan of 3G license expiration by the NCC

(1) Status

With 3G licenses due to expire on December 31, 2018, the NCC passed the 3G user rights protection plan on January 3, 2018, to ensure “zero impact” and “zero dispute” as the policy goal for 3G users migration to 4G services.

(2) Countermeasures

The Company offers preferential programs to encourage 3G users to migrate to 4G services.

3. NCC's auction of 1800MHz and 2100MHz bands

(1) Status

The Company participated in the NCC's auction of the 1800MHz and 2100MHz bands on October 31, 2017. The NCC released 120MHz of bandwidth on the 2100MHz frequency, which was divided into 12 blocks (E1~E12). The Company successfully bid four frequency blocks, with total bandwidth of 40MHz, or 20MHz each for uplink and downlink.

(2) Countermeasures

The frequency blocks the Company successfully bid overlap with its existing 3G frequency blocks. This creates a heterogeneous network that ensures 3G voice service will not be interrupted during the transition period while providing 4G subscribers with a better user experience and broadband services.

4. Draft bill to prevent media monopolies and promote diversity

(1) Status

The NCC held a public hearing on the draft bill against media monopolization on July 31, 2017, and invited the public to submit their opinions until September 10, 2017. Internal discussions of the bill are ongoing.

(2) Countermeasures

The draft bill is still in the initial phase due to differences in opinion among academics, politicians and the public. Legislative approval will also take time before the government and lawmakers reach a consensus. The Company is closely monitoring the progress of the proposed bill and continues to communicate with and forward suggestions and recommendations on related policies and regulations to the NCC, the Executive Yuan and the Legislative Yuan to prevent overregulation hindering the industry's development.

5. Revision of radio frequency usage fee scheme

(1) Status

To improve mobile broadband coverage in rural areas, the NCC revised regulations governing radio frequency usage charges. Telecom operators that cover over 85%, 90% or 95% of the population in rural areas are to receive discounts of 5%, 10% or 15%, respectively, on their radio frequency usage fees.

(2) Countermeasures

The Company is eager to set up high-speed transmission stations in rural areas to create a "win-win" situation that advances rural users' digital rights, while the Company benefits from lower spectrum usage fees.

6. Reduction of mobile termination rates

(1) Status

The NCC implemented a four-year scheme to lower the mobile termination rate, which was reduced from NT\$1.15 per minute to NT\$0.965 on November 1, 2017, and is to further drop to NT\$0.811 in 2018, NT\$0.680 in 2019 and NT\$0.571 in 2020.

(2) Countermeasures

Given that both interconnecting revenue and cost to decrease at the same time, there is no significant financial impact is expected.

7. Reduction of wholesale IP peering charges

(1) Status

Per the average price of Telegeography in Asia-Pacific region as a reference, the NCC approved Chunghwa Telecom's new wholesale pricing scheme on April 12, 2017, which lowered the IP peering charge from NT\$314 per Mbps to NT\$ 170 per Mbps, a reduction of 46%. This scheme took effect retroactively on April 1, 2017.

(2) Countermeasures

This reduction has lowered the IP peering cost of the Company, which is beneficial to the Company as it offers various digital economy services to satisfy client needs.

Technology changes and development

1. Mobile broadband access network

(1) Status

Major changes in 2017 included:

- a. 2G licenses expired on June 30, 2017, and services were terminated in August 2017.
- b. In November 2017, the NCC held its third mobile broadband spectrum auction of the 2100MHz and 1800MHz frequency bands.
- c. Increasing popularity of embedded video and live streaming on social media fueled the continued growth of mobile data traffic.
- d. To address the growing demand for connecting low-complexity, low-power devices to the wide-area mobile network, mobile network operators have started trials and deployment of IoT networks using both licensed and unlicensed bands.

(2) Countermeasures

TWM took advantage of the opportunities as follows:

- a. With 2G licenses set to expire, TWM championed the cause of terminating 2G services altogether and joined forces with other operators to lobby the NCC. 2G services were terminated in August 2017, thereby reducing operating expenditure.
- b. TWM won 20MHz of the 2100MHz paired spectrum to support its 3G services and future 4G expansion needs.
- c. Deployed small cells to increase the mobile network capacity and coverage in hotspots.
- d. Adjusted load sharing of the 700MHz and 1800MHz bands dynamically to optimize spectrum utilization. Expanded coverage of carrier aggregation to increase average spectral efficiencies and improve network performance.
- e. Improved cell throughput and user experience by deploying several key LTE technologies, including 256 QAM, 4x4 MIMO and 3CCA.
- f. Introduced a telecom-grade NB-IoT network to support low-energy-consumption IoT services with high availability and stability.

TWM will continue to focus on providing 4G services with the best speed, coverage and customer experience to maintain its competitive edge.

2. Network technology development

(1) Status

To meet the challenges of 5G, networks need to be transformed to support ultra-mobile broadband, massive IoT and mission-critical services. Multi-access edge computing (MEC) and network function virtualization (NFV) technologies have received a lot of attention. NFV facilitates the design, delivery and operation of mobile core network services in a dynamic and scalable manner, reducing the complexity and time required for deploying network equipment. MEC, which offers ultra-low latency, ultra-large bandwidth and real-time processing, can reduce the utilization of core network and backbone transmission network, as well as end-to-end latency.

(2) Countermeasures

TWM was the first telecom operator in Taiwan to deploy an NFV infrastructure for enterprises in early 2017. The NFV-core network, vEPC, supports a large number of IoT applications with low-power consumption and high transmission capacity. TWM is building an MEC platform for CPBL's Xinzhuang Baseball Stadium. By delivering multi-view, low-latency and real-time video services through MEC edge video orchestration (EVO), TWM can provide an unparalleled user experience for sporting events.

3. Digital convergence and cloud services

(1) Status

Next generation network (NGN) utilizes a converged all-IP network to transport voice, data, image and video, and support a wide variety of devices.

Cloud services have broken the traditional boundaries between industries, triggering cross-industry competition.

(2) Countermeasures

In 2017, TWM's infrastructure as a service (IaaS) received ISO27018 certification for personal information security, and its cloud data center received ISO14001 certification for environmental management. TWM's strategy is to continuously enhance its information security, service quality and cloud services, and complement them with a world-class cloud IDC infrastructure.

Impact of changes in brand image on the Company's risk management policies in 2017 up to publication date in 2018:

None. TWM has developed a sound reputation among investors and customers for its continuing efforts to enhance corporate governance, network communication quality and customer service, as well as to fulfill its corporate social responsibility. These efforts won numerous recognitions and awards in 2017 (please refer to Chapter 1) and should aid the Company in preventing, controlling and managing latent risks that it may face and help it maintain its good corporate image.

Expected benefits and risks from mergers in 2017 up to publication date in 2018: None.

Expected benefits and risks related to plant facility expansions in 2017 up to publication date in 2018: Not applicable as the Company is not a manufacturer.

Risks from supplier and buyer concentration in 2017 up to publication date in 2018:

The Company has minimal risks from supplier and buyer concentration (please refer to Chapter 4).

Significant changes in shareholdings of directors and major shareholders in 2017 up to publication date in 2018: None.

Changes in management controls in 2017 up to publication date in 2018: Not applicable.

Significant lawsuits and non-litigious matters in 2017 up to publication date in 2018

1. The Company:

(1) Spectrum dispute between Far EasTone Telecommunications Co., Ltd. ("FET") and Taiwan Mobile ("the Company")

Parties Involved: FET is the plaintiff and the Company is the defendant.

Grounds for Lawsuit:

FET filed a lawsuit claiming that the Company should: (a) file an immediate application to return the spectrum block 1748.7-1754.9/1843.7-1849.9 MHz (hereinafter referred to as “C4 spectrum block”) to the NCC; (b) be prohibited from using the C4 spectrum block in any way, (c) stop using the spectrum block 1715.1-1721.3/1810.1-1816.3 MHz (hereinafter referred to as “C1 spectrum block”) until it has returned the C4 spectrum block to the NCC, and (d) pay FET NT\$1,005,800,000.

Status:

In May 2016, the Taipei District Court (“District Court”) ruled that: (i) the Company received unfavorable judgment on the claims stated in sections (a) to (c); (ii) FET received unfavorable judgment on the claim stated in section (d); and (iii) FET may file a provisional execution with a collateral of NT\$320,630,000 to the favorable portion of the judgment, and the Company may provide a counter security of NT\$961,913,313 to be exempted from, or to move for revocation of FET’s provisional execution. The Company has provided a counter security of NT\$962,000,000 to be exempted from the provisional execution. The Company and FET filed appeals with the Taiwan High Court (“High Court”).

The High Court on January 16, 2018 ruled as follows:

- (1) The District Court judgment in connection with the following items was dismissed:
 - (i) “the Company shall apply to return the C4 spectrum block to the NCC immediately,” “the Company shall not use the C4 spectrum block in any way,” and “the Company shall not use the C1 spectrum block before the C4 spectrum block has been returned to the NCC,” and the corresponding portion that FET claimed provisional execution; and
 - (ii) the portion of judgment that “rejected the Company paying FET NT\$1,005,800,000,” the corresponding portion of provisional execution, and litigation expenses.
- (2) For the dismissed portion stated in the above section 1(i), FET’s claim and the motion of provisional execution in the first instance were rejected.
- (3) For the dismissed portion stated in the above section 1(ii), the Company shall pay FET NT\$765,779,233 as well as a 5% annual interest payment, for the period starting from September 5, 2015, to the payment date, on NT\$152,583,658 of the above amount.
- (4) The rest of FET’s appeal was rejected.
- (5) With regards to the ruling on the Company’s payment, FET may file a provisional execution with a collateral of NT\$255,260,000; and the Company may provide a counter security of NT\$765,779,233 to be exempted from FET’s provisional execution.
- (6) The Company and FET shall each bear half of the litigation expenses.
- (7) The rest of FET’s motions of provisional execution and appeal was rejected.

The Company has appealed the High Court’s ruling to the Supreme Court.

(2) Provisional injunction filed over spectrum dispute between FET and the Company

Parties Involved: FET is the claimant and the Company is the counterparty.

Grounds for Lawsuit: FET filed a provisional injunction in May 2015 to prohibit the Company’s use of the C1 spectrum block.

Status: In July 2015, the District Court ruled that FET may provide a collateral of NT\$1,048,703,000 to restrict the Company’s use of the C1 spectrum block; and the Company may provide a counter security of NT\$927,000,000 to continue using the C1 spectrum block. The Company has provided such counter security to continue using the C1 spectrum. The Company filed a claim with the High Court in August 2017 to revoke the District Court’s provisional injunction. The High Court revoked the District Court’s ruling in a final verdict on January 9, 2018.

(3) Provisional injunction filed over spectrum dispute between FET and the Company

Parties Involved: FET is the claimant and the Company is the counterparty.

Grounds for Lawsuit: FET filed a provisional injunction in April 2016, claiming that the Company should: (a) file an immediate application to return the C4 spectrum block to the NCC; (b) not use the C4 spectrum block in any way; and (c) not use the C1 spectrum block until it has returned the C4 spectrum block to the NCC.

Status: In April 2016, the District Court ruled that: (i) after FET provided a collateral of NT\$143,050,272, the Company should apply to return the C4 spectrum block to the NCC and be prohibited from using the C4 spectrum block; and (ii) the Company may provide a counter security of NT\$547,118,523 to be exempted from, or to move for revocation of the above provisional injunction. The Company has provided the counter security; therefore, the Company is not required to return the C4 spectrum block to the NCC and may continue to use the C4 spectrum block. The Company and FET filed separate appeals against parts of the ruling deemed as unfavorable to them. The High Court ruled partly in favor of the Company. Both the Company and FET filed separate appeals with the Supreme Court. The Supreme Court dismissed the High Court's ruling and remanded the case to the High Court for a new ruling.

In September 2017, the High Court ruled that since the Company had returned the C4 spectrum block and FET had been using it, FET had achieved its claim. The High Court affirmed the Company's statement and rejected FET's appeal and application for a provisional injunction. FET filed another appeal with the Supreme Court, which rejected it in a final ruling on January 2, 2018.

2. The Company's directors, general manager, executives, major shareholder holding more than 10 percent of the Company's shares: None.

3. The Company's subsidiaries

(1) Dispute between Taiwan Kuro Times Co., Ltd. ("MyMusic") and the Taiwan Intellectual Property Office ("TIPO") for a review of generalized licensing royalty rates

Parties Involved: MyMusic is the plaintiff and TIPO is the defendant.

Grounds for Lawsuit:

On December 19, 2012, TIPO issued an administrative disposition setting a 2.5% generalized licensing royalty rate in response to an application filed by MyMusic on September 1, 2010, for a review of the generalized licensing royalty rates announced by the Music Copyright Society of Chinese Taipei ("MUST") on August 12, 2010. MyMusic disagreed with the generalized licensing royalty rate stipulated in TIPO's disposition and filed an administrative appeal.

Status:

The Ministry of Economic Affairs dismissed the appeal issued by MyMusic on June 25, 2013. MyMusic filed an administrative litigation on August 23, 2013. The Intellectual Property Court rejected MyMusic's claim on March 26, 2014. MyMusic filed an appeal with the Supreme Administrative Court on April 25, 2014. The Supreme Administrative Court dismissed the original ruling and remanded the litigation to the Intellectual Property Court on August 17, 2015. The Intellectual Property Court rejected MyMusic's claim on July 14, 2016. MyMusic filed an appeal with the Supreme Administrative Court on August 15, 2016. The Supreme Administrative Court rejected the appeal in a final ruling on August 22, 2017 (i.e. TIPO's 2.5% generalized licensing royalty rate was upheld).

Other major risks

Customer fraud management policy

1. Verification before activation

Applicants' identity and qualifications are carefully reviewed and verified before service is activated.

2. Monitoring after activation

- (1) Exception management: Relatively "high-risk" applicants are filtered out by the system to protect users' interests.
- (2) Credit control: The system analyzes customers' behavioral patterns to strengthen client management.

Other significant items: None.