

An Estimation of North Korea's External Debt

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This paper estimated North Korea's external debt balance using published data. This paper differs from previous studies in that the balance of external debt was calculated according to international statistical standards and the total balance of external debt is calculated after including the credits of non-members of the Paris Club and international financial institutions. In particular, in this process, whether or not the external debt items are double counted is reviewed. North Korea's total external debt was estimated at 5.9~14.7 billion dollars as of the end of 2021. Among them, debt to public institutions accounted for 2.3~11.1 billion dollars, and debt to financial institutions accounted for 3.6 billion dollars. Based on the estimates of this paper, the following implications may be suggested regarding the high level of external debt and the likelihood of an overwhelmingly high share of debt to China. First, such an increase in external debt will cause some problems in repayment of external debt in the event of inter-Korean economic integration. Second, if the debt to China is overwhelming, it is possible that North Korea may significantly lose its bargaining power in its economic transactions with China in terms of price, volume and ancillary conditions.

Keywords: International Statistical Standard, External Debt, Debt to Public Institutions, Debt to Financial Institutions, North Korea

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1. Introduction

In the early 1970s, North Korea introduced a considerable amount of machinery and plants from the West, including Japan, France, Germany, and the United Kingdom, in the form of credit provision.

However, in the late 1970s, due to the oil crisis and the accumulation of trade deficits, North Korea was unable to repay its external debts on time and faced an external debt problem. After the first oil crisis, the trade deficit began to widen as the burden of crude oil imports increased and the international price of non-ferrous metals, its main export item, plummeted.¹ The West German export insurance company Hermes suspended its underwriting of export insurance to North Korea in July 1975.² After several debt repayment negotiations between North Korea and the West, Western creditors declared North Korea to be in default in August 1987.³

Currently, North Korean authorities do not disclose any external debt-related data, and the South Korean government and the OECD, which provide estimates of North Korea's external debt, have also stopped doing so. The South Korean government and the OECD have not provided any estimates of North Korean external debt since 2000 and 2002, respectively. Not only is it difficult to confirm the drafting standards of the two institutions, but the difference between the estimates is also large. For example, regarding the scale of North Korea's external debt in 2000, the South Korean government's 12.5 billion dollars and the OECD's 7.5 billion dollars indicate a large gap between the estimates of the two institutions.

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- 1 Masahiko Nakagawa, *The Ideal and Reality of the Choseon Socialist Economy: Industrial Structure and Economic Management in the Democratic People's Republic of Korea* (Tokyo: IDE-JETRO, 2011), 98. [in Japanese]
 - 2 Moon-Soo Yang, "North Korea's External Debt Problem: Trends and Characteristics," *KDI Review of the North Korean Economy*, March 2012, 24. [in Korean]
 - 3 Sung-Min Mun, "Recent Changes in North Korean Finance and Reform Tasks," *BOK Institute Working Paper No. 236* (November 2005), 15. [in Korean]

Meanwhile, North Korea's external debt issue is a prerequisite that needs to be reviewed in advance in relation to returning to the international community, economic development through foreign capital procurement, and economic integration between the two Koreas. Therefore, it is necessary to constantly monitor its external debt and to estimate its size.

The structure of this paper is as follows. Section 1 describes the purpose, scope, and methodology of the research. Section 2 outlines previous studies on the estimation of North Korea's external debt and its characteristics. Section 3 describes the method of estimating North Korea's external debt used in this paper and examines whether there is double-counting of external debt items by creditors. Section 4 estimates the size of North Korea's external debt based on data about North Korea's debt to major creditors such as the Paris Club, the amount of crude oil imports into North Korea, and news articles related to North Korea's external debt and then provides a comprehensive assessment of North Korea's total external debt balance. Section 5 summarizes the estimation results and suggests implications for the North Korean economy and inter-Korean economic integration.

2. Literature Review

1) Preceding Research on Estimation of North Korean External Debt

The OECD compiled North Korea's external debt statistics for the first time based on the internationally agreed-upon standard. And these statistics are based on creditor information and published estimates for the period 1988~2002. The statistics estimate official credit and bank loans to North Korea in OECD countries and ad hoc estimates of official credit in some non-OECD countries to calculate the total external debt balance.

The Paris Club has published annual statistics on North Korea's external debt since 2008 based on creditor information from 22 member countries. However, the coverage is limited to the claims held by the

member states and public institutions, so it is quite narrow.

The Joint External Debt Hub (JEDH) is an integrated external debt statistics site jointly developed by BIS-IMF-OECD-World Bank, which publishes information on external debt from 216 countries on its website. Based on creditor information, it has published statistics on North Korea’s foreign debt since 1990 on a quarterly basis. This statistic is characterized by an expanded coverage of OECD statistics, including debt securities and Berne union claims. However, this statistic excludes credit from international financial organizations, so in this respect the scope is smaller than the OECD statistics. Meanwhile, this statistic does not publish the total external debt balance, which is presumed to be due to the possibility of overlapping among items.

<Table 1> North Korea’s external debt (JEDH example)

Series Name	2021Q4(USD)
01_Cross-border loans from BIS reporting banks	75,430,000
02_Cross-border loans from BIS banks to nonbanks	13,181,000
03_Official bilateral loans, total	..
04_Official bilateral loans, aid loans	..
05_Official bilateral loans, other	..
06_Multilateral loans, total	..
07_Multilateral loans, IMF	..
08_Multilateral loans, other institutions	..
09_Insured export credit exposures, Berne Union	10,000,000
10_Insured export credit exposures, short term (BU)	-
11_SDR allocation	..
12_Liabilities to BIS banks (cons.), short term	74,737,000
13_Multilateral loans, IMF, short term	..
14_Debt securities held by nonresidents	22,244,252
15_Debt securities held by nonresidents, total, short term	-
16_International debt securities, all maturities	..
17_International debt securities, nonbanks	..
18_International debt securities, short term	..
19_Intnl debt securities, nonbanks, short term	..
20_Paris Club claims (ODA)	72,000,000

Series Name	2021Q4(USD)
21_Paris Club claims (non-ODA)	2,055,000,000
22_Liabilities to BIS banks, locational, total	82,701,000
23_Liabilities to BIS banks, consolidated, total	80,087,000
24_International reserves (excluding gold)	..
25_SDR holdings	..
26_Portfolio investment assets	..
27_Cross-border deposits with BIS rep. banks	35,183,000
28_Cross-border dep. with BIS banks, nonbanks	25,392,000

Source: Joint External Debt Hub (JEDH) website (<http://www.jedh.org/>)

Choi and Han (201) explain in detail the individual items of North Korea's external debt.⁴ The statistical coverage includes credit from non-members of the Paris Club, which is missing from the JEDH section. It also briefly explains the credit from international financial institutions. However, Choi and Han (2021) did not calculate the total external debt of North Korea.⁵

According to related literature, there are not many studies focused on the calculation of North Korea's total external debt. Most studies have been limited to estimating individual items of its external debt. And none of the studies explicitly examined the possibility of double-counting.

Among other things, the estimates in this paper are compiled in accordance with the international statistical standard. The international statistical standard published as "External Debt Statistics: Guide for Compilers and Users" is supposed to improve the availability and international comparability of external debt statistics by providing comprehensive guidance for the measurement and presentation of external debt statistics.⁶

4 Yoojeong Choi and Halin Han, "Issues and Tasks Regarding External Debt of the DPRK: Centering around International Rules and Cases Abroad," *Policy References* 21-04 (2021), 21-51. [in Korean]

5 Ibid.

6 International Monetary Fund, *2013 External Debt Statistics Guide: Guide for Compilers and Users* (Washington D.C., 2014), 1, <http://tffs.org/pdf/edsg/ft2014>.

This paper differs from previous research in that it calculates the total balance of external debt after including credit from non-members of the Paris Club and international financial institutions that are absent from the items of JEDH. In particular, in this process, external debt items are examined for double-counting.

2) Preceding Research on the Characteristics of North Korea's External Debt

Zang, Kim and Song (2009) estimate that North Korea's external debt is increasing despite its inability to borrow anything new outside of China, as the interest on North Korea's delayed repayment of its external debt snowballs.⁷ Zang, Kim and Song (2009) described the characteristics of North Korea's external debt by creditor country.⁸ In particular, the paper speculated that China had been providing crude oil to North Korea at a "favorable price" until the early 1990s, but then at an "international price," in which case North Korea's debt to China in the form of concessional loans was increasing.

Yang (2012) pointed out that the size of North Korea's external debt is tentative.⁹ This is because the size of foreign debt may vary depending on the outcome of debt negotiations with creditor countries in the future, and the size of debt is likely to vary depending on the level of the applicable exchange rate and interest rate. Yang (2012) predicted that since Japan and others are extending debt repayment, the size of foreign debt may increase further as overdue interest increases.¹⁰

pdf.

7 Hyounghoo Zang, Suk-Jin Kim and Jungho Song, "International Cooperation for North Korean Development Assistance," *Collaborative Research White Book of National Research Council for Economics, Humanities, and Social Sciences* (Seoul: Korea Institute for National Unification, 2009), 40-44. [in Korean]

8 Ibid.

9 Moon-Soo Yang, "North Korea's External Debt Problem: Trends and Characteristics," *KDI Review of the North Korean Economy*, March 2012, 25. [in Korean]

10 Ibid., 26.

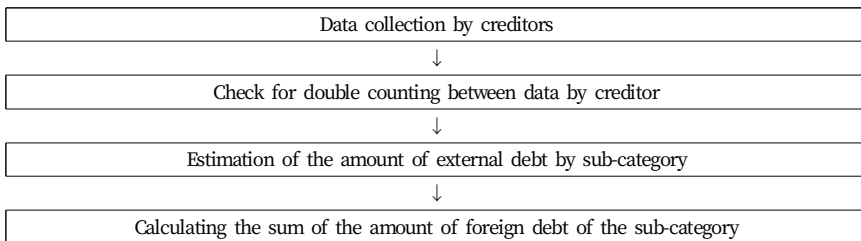
Kang (2020) believes that in North Korea the accumulated interest exceeds the principal amount, and the total amount of foreign debt is soaring.¹¹ In addition, the recent economic sanctions against North Korea are considered to be exacerbating North Korea's default situation.

3. Method of Estimating North Korea's External Debt in this Paper

1) Classification of Types of External Debt in North Korea

This paper calculates the size of the total external debt through the following process. First, data by creditors are collected and double counting between data by creditor is checked. Then, the amount of external debt by sub-category is estimated. Finally, the sum of the amount of foreign debt of the sub-category is calculated.

〈Table 2〉 Estimation method of this paper



Above all, North Korea's external debt is estimated by dividing it into debt to public institutions and debt to financial institutions by classifying creditors.

Debts to public institutions are then divided into debts to members of the Paris Club, to non-members of the Paris Club, to member companies

11 Woochul Kang, "North Korea's External Debt Status and Handling Measures: Implications for financing development cooperation in North Korea," *Exim North Korea Economic Review* 67 (2020): 75-82. [in Korean]

of the Berne Union, and international financial organizations. Here, the Paris Club is an informal international organization formed in 1956 by creditor countries, mainly developed countries,¹² to carry out debt restructuring negotiations between debtor countries experiencing difficulties in repayment and multiple creditors. The Berne Union is an international association of export credit insurance and foreign investment insurance institutions established in Berne, Switzerland in 1934.¹³ Debts to financial institutions are divided into debts owed to BIS member banks and then those to Western syndicated loan participants.

Classification by creditor is based on the nature of data sources, such as data from international organizations, from the Joint External Debt Hub (JEDH)¹⁴, from data published by individual creditors, and from press reports.

In this report, we estimated the size of North Korea's external debt based on published basic data, including statistics from international organizations and media reports.

In this study, the financial instruments to be estimated were limited to deposits, loans, debt securities, and other accounts payable due to data limitations. This is narrower than the criteria presented by the IMF, since the IMF proposes deposits, loans, debt securities, other payable obligations, insurance¹⁵, and trade credit as financial instruments subject to compilation. Meanwhile, according to the IMF External Debt Statistics Guide, equity and investment fund shares and financial derivatives are excluded from the comprehensive scope because they do not require

12 It includes Russia.

13 The Berne Union mission is to actively facilitate cross-border trade by supporting international acceptance of sound principles in export credit and foreign investment (Berne Union website).

14 The Joint External Debt Hub (JEDH) is an integrated external debt statistics site jointly developed by BIS, the IMF, the OECD and the World Bank. On its website, it publishes information about external debt for 216 countries.

15 The IMF states that "insurance, pension, and standardized guarantee schemes" be included.

repayment of principal or interest. In addition, contingent liabilities, which determine whether or not they are liabilities depending on future circumstances, are excluded from the comprehensive scope because they are not considered to have reached the accrual stage.

On the other hand, if we look at the financial instruments by data source, the Paris Club statistics cover loans, debt securities and other accounts payable, while BIS statistics cover deposits, loans, and debt securities. Berne Union statistics cover only other accounts payable, while data from non-members of the Paris Club, the international financial organizations, and the Western syndicated loan participants cover only loans.

Both this paper and OECD (2003) appear to cover the entire creditor in terms of the classification of creditors, even though this paper divides it into debt to public institutions and Debt to public institutions while OECD (2003) divides it into official credits by OECD countries, financial markets and official credits by non-OECD countries. But, in terms of the classification of financial instruments, OECD (2003) seems not to cover debt securities at all unlike this paper.

(Table 3) Classification and sources of external debt data about North Korea

Classification by Creditors		Related Debt Instrument	Sources
Debt to public institutions	Members of the Paris Club ¹⁾	Loans, debt securities, other accounts payable	Paris Club website
	Non-Members of the Paris Club	Loans	Media coverage, KOTRA website
	Members of Berne Union ¹⁾	Other accounts payable	Berne Union website
	International financial organizations	Loans	Each organization's website
Debt to financial institutions	BIS banks ¹⁾	Deposits, loans, debt securities	BIS website
	Western syndicated loan participants	Loans	Media coverage

Note: 1) This information is also provided by the Joint External Debt Hub (JEDH).

2) Double-counting issue of North Korea’s External Debt

Due to the variety of relevant information used to estimate North Korea’s external debt, it is possible that some items may be double-counted. It is necessary to examine the relevant information about these risks. In particular, it is necessary to examine whether there is a risk of overlap between members of the Paris Club and members of the Berne Union, between non-members of the Paris Club and members of the Berne Union, and between BIS banks and Western syndicated loan participants.

As shown in the table below, member countries of the Paris Club, the BIS and the Berne Union overlap considerably.

<Table 4> Comparison of member states of the Paris Club, the BIS and the Berne Union

Paris Club¹⁾	BIS²⁾	Berne Union³⁾
Australia	Australia	Australia
Austria	Austria	Austria
Belgium	Belgium	Belgium
Brazil	Brazil	-
Canada	Canada	Canada
Denmark	Denmark	Denmark
Finland	Finland	Finland
France	France	France
Germany	Germany	Germany
Ireland	Ireland	-
Israel	-	Israel
Italy	Italy	Italy
Japan	Japan	Japan
Netherlands	Netherlands	Netherlands
Norway	Norway	Norway
Russia	-	Russia
South Korea	South Korea	South Korea
Spain	Spain	Spain
Sweden	Sweden	Sweden
Switzerland	Switzerland	Switzerland
United Kingdom	United Kingdom	United Kingdom

Paris Club ¹⁾	BIS ²⁾	Berne Union ³⁾
United States	United States	United States
-	Greece	Greece
-	Portugal	Portugal
-	Luxembourg	Luxembourg
-	Turkey	Turkey
-	Taiwan	Taiwan
-	Hong Kong	Hong Kong
-	Singapore	Singapore
-	India	India
-	Indonesia	Indonesia
-	Mexico	Mexico
-	Chile	-
-	Panama	-
-	-	China
-	-	Thailand
-	-	Sri Lanka
-	-	New Zealand
-	-	Caribbean 3 countries ⁴⁾
-	-	2 Central Asian countries ⁵⁾
-	-	14 Eastern European countries ⁶⁾
-	-	8 countries in the Middle East ⁷⁾
-	-	7 African countries ⁸⁾

Note: 1) 22 permanent member states.

2) 32 CBS Statistics Reporting Countries.

3) 68 countries (by nationality of member companies).

4) Dominican Republic, Jamaica, Bermuda.

5) Kazakhstan, Uzbekistan.

6) Hungary, Romania, Poland, Slovenia, North Macedonia, Czech Republic, Slovakia, Bulgaria, Croatia, Serbia, Belarus, Estonia, Ukraine, Armenia.

7) Oman, Kuwait, United Arab Emirates, Qatar, Iran, Saudi Arabia, Jordan, Lebanon.

8) Kenya, Botswana, South Africa, Ghana, Egypt, Senegal, Zimbabwe.

① Whether double-counting may occur between debts to members of the Paris Club and debts to members of the Berne Union

While the Paris Club member states report claims of governments and public institutions, Berne Union members report claims related to import and export guarantees of general enterprises. Considering this, the possibility of any bilateral overlap is low. However, if the bonds of Berne Union members to North Korea are guaranteed by the North Korean

Cabinet as an exception, they may be classified as debts to the Paris Club, and there is a possibility of double-counting.

② Whether double-counting may occur between debts to non-members of the Paris Club and debts to members of the Berne Union

Currently, countries such as China, Hungary, the Czech Republic, and Romania are not members of the Paris Club. Since claims of non-members of the Paris Club are the supply of funds in the form of loans between countries, while claims of Berne Union members are related to import and export guarantees, the possibility of any bilateral overlap is low.

③ Whether double-counting may occur between debts to BIS banks and debts to Western syndicated loan participants

It is known that syndicated loans from Western financial institutions to North Korea were securitized in the late 1990s and sold to investors. Therefore, there is a low possibility of double-counting between debts to BIS banks and debts to Western syndicated loan participants.

4. Estimation Results of North Korea's External Debt by Creditor

1) Estimated results of debt to public institutions (debt to government agencies and international financial organizations)

① Debts to Members of the Paris Club

North Korea's debt balance to members of the Paris Club was estimated at 2.128 billion dollars as of the end of 2021. Official Development Assistance (ODA) is a small proportion and most of it is commercial loans for the import of machinery. That debt plunged to 2.526 billion dollars in 2014, 24% of the previous year (10.445 billion dollars), largely due to Russia's write-offs of 90% of its Soviet claims on North Korea.¹⁶ The debt

¹⁶ Choljong You, "Putin finalizes ratification of North Korea debt relief agreement," *Yonhap News*, May 5, 2014. [in Korean]

that Russia has written off has the character of non-ODA.

〈Table 5〉 Estimation of North Korea's debt to members of the Paris Club

(Million dollars, as of year-end)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Debt to members of the Paris Club	10,188	10,445	2,526	2,351	2,234	2,345	2,274	2,199	2,293	2,128
(ODA)	0	0	1	0	0	71	73	75	80	72
(Non-ODA)	10,188	10,445	2,525	2,351	2,234	2,274	2,200	2,124	2,213	2,055

Source: Paris Club website. (<https://clubdeparis.org/>)

② Debts to Non-Members of the Paris Club

North Korea's public debt balance to non-members of the Paris Club was estimated at 8.854 billion dollars as of the end of 2021. North Korea's external debts were estimated to five countries for which data are available: China¹⁷, Kuwait¹⁸, Hungary¹⁹, the Czech Republic²⁰, and Romania²¹.

17 KOTRA website, https://dream.kotra.or.kr/dream/cms/com/index.do?MENU_ID=1240.

18 Kuwait Fund for Arab Economic Development website, <https://www.kuwait-fund.org/en/web/kfund/opportunities>.

19 Financial Times, "Hungary reveals North Korean debt request," August 18, 2010, <https://www.ft.com/content/a2899b4e-2aec-3616-b6e2-3156e98a7f0b>.

20 Youngnam Kim, "Czech Republic 'North Korea does not pay \$2.6 million in debt... Unable to accommodate excessive demand for indemnity,'" *Voice of America*, October 27, 2017a [in Korean], <https://www.voakorea.com/a/4088420.html>.

21 Youngnam Kim, "Romania 'North Korea refuses to repay debt, citing U.S. sanctions,'" *Voice of America*, November 2, 2017b [in Korean], <https://www.voakorea.com/a/4096043.html>.

(Table 6) Estimation of North Korea’s debt to non-members of the Paris Club

(Million dollars, as of year-end)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Debt to non-members of the Paris Club	5,783	6,381	6,881	7,161	7,391	7,671	7,981	8,271	8,491	8,854
(China)	5,711	6,309	6,809	7,089	7,319	7,599	7,909	8,199	8,419	8,783
(Kuwait)	62	62	62	62	62	62	62	62	62	62
(Hungary)	6	6	6	6	6	6	6	6	6	6
(the Czech Republic)	3	3	3	3	3	3	3	3	3	3
(Romania)	1	1	1	1	1	1	1	1	1	1

Source: KOTRA website, Kuwait Fund for Arab Economic Development website, Financial Times, Voice of America.

China provides about 530,000 tons of crude oil to North Korea every year²². China supplies crude oil to North Korea via the Dandong pipeline from the DAQING oil field in the Northeast²³.

Based on “China’s Foreign Aid” announced by the Chinese government in April 2011, China’s oil supply to North Korea may be in the nature of free aid or interest-free loans. “China’s Foreign Aid” states that material aid is equivalent to free aid, people’s livelihood items are equivalent to interest-free loans, and the construction of medium and large-scale production facilities are equivalent to preferential loans. If China’s crude oil support through pipelines is interpreted as “material aid,” it is considered to be free aid, and if it is interpreted as a “people’s livelihood” item, it is judged to be equivalent to interest-free loans.

Given that many studies view China’s oil supply as an interest-free

22 Hyoungsoo Zang and Suk-Jin Kim, “Estimation of the Balance of Foreign Exchanges and Foreign Exchange Reserves of the Kim Jong-Un Regime and Implications for North Korea–US Denuclearization Negotiations,” *Review of North Korean Studies* 22:1 (2019): 8-43. In 2017, UN Security Council Resolution 2375 set a cap on North Korea’s crude oil imports at 2 million barrels, similar to about 530,000 tons of crude oil imported from China each year, recognizing China’s supply of crude oil to North Korea.

23 Youji Gomi, *Can China Stop North Korea: Following 60 Years of China-North Korea Love and Hate* (Tokyo: Banseisha, 2016), 89. [in Japanese]

loan²⁴ and that the amount of additional aid has been reflected in North Korea's import figures²⁵, this study also views China's crude oil supply to North Korea as an interest-free loan in estimating the external debt.

The external debt balance to China is calculated by cumulating the annual crude oil supply estimate. KOTRA publishes estimates of China's oil supply to North Korea every year. Assuming no debt service²⁶, the maximum is estimated, and North Korea's debt to China as of the end of 1995 is assumed to be 2.2 billion dollars.²⁷ North Korea's debt balance to China as of the end of 2021 was estimated at 8.8 billion dollars by accumulating the estimates of crude oil supply through to 2021. KOTRA's estimate of China's crude oil supply to North Korea may have a significant error depending on the price and volume application. Nonetheless, the data published by KOTRA is the only one currently available that has both reliability and consistency, so it has been used in the estimation of this paper.

Kuwait, through its own fund, the Kuwait Fund for Arab Economic Development, provided a total of 62 million dollars in loans for infrastructure reconstruction projects in Pyongyang, including water and sewage. This is included in North Korea's external debt statistics. Since the actual loan amount and repayment amount were not disclosed, the entire approval amount was considered to be part of the external debt balance

24 Hyoungsoo Zang, Suk-Jin Kim and Jungho Song, "International Cooperation for North Korean Development Assistance," *Collaborative Research White Book of National Research Council for Economics, Humanities, and Social Sciences*, (Seoul: Korea Institute for National Unification, 2009), 43. [in Korean] and Moon-Soo Yang, "North Korea's External Debt Problem: Trends and Characteristics," *KDI Review of the North Korean Economy*, March 2012, 34. [in Korean]

25 KOTRA, *2021 North Korea's Foreign Trade Trends* (Seoul, 2022), 17. [in Korean]

26 "China's Foreign Aid" specifies a 10-year deferral period and a 10-year repayment period for interest-free loans. And data on North Korea's repayment amounts is not currently available.

27 Ministry of Unification, *Ministry of Unification announcement*, May 17, 1996. [in Korean]

and late interest was not calculated separately.

〈Table 7〉 North Korea's debt to the Kuwait Fund for Arab Economic Development

(Million USD)

	Loan Approval Amount	Loan Period (Years)	Agreement Year	Interest Rate
Renovation and Modernization of Water Supply and Drainage System of Pyongyang	21	24.33	2002	2.0%
Pyongyang City Wastewater Project (Pumping Stations)	21	24.17	2008	2.0%
Construction of a New Pyongyang-Pyongsong Road	20	25.58	2012	2.5%
Total	62			

Source: Kuwait Fund for Arab Economic Development website <https://www.kuwait-fund.org/en/web/kfund/opportunities>.

In addition, Hungary,²⁸ the Czech Republic,²⁹ and Romania³⁰ all reportedly hold government claims against North Korea of 6 million dollars, 3 million dollars, and 1 million dollars, respectively. In the case of these countries, there is no information about debt forgiveness or interest rates, so it is assumed that the size of the external debt at the time of the media report has remained the same.

③ Debt to Berne Union members

If the foreign export insurance agency pays the import payment on behalf of the North Korean company, the amount of the relevant indemnification claim will be calculated through the Berne Union. This was estimated at 10 million dollars as of the end of 2021.

28 Financial Times, "Hungary reveals North Korean debt request," August 18, 2010, <https://www.ft.com/content/a2899b4e-2aec-3616-b6e2-3156e98a7f0b>.

29 Youngnam Kim, "Czech Republic 'North Korea does not pay \$2.6 million in debt...Unable to accommodate excessive demand for indemnity,'" *Voice of America*, October 27, 2017a, [in Korean] <https://www.voakorea.com/a/4088420.html>.

30 Youngnam Kim, "Romania 'North Korea refuses to repay debt, citing U.S. sanctions,'" *Voice of America*, November 2, 2017b, [in Korean] <https://www.voakorea.com/a/4096043.html>.

It is seen to be unlikely that North Korea's external debt as calculated by the Berne Union will be discussed at the Paris Club due to its nature, so it is calculated separately from the Paris Club figures. Considering that the members of the Berne Union report debts of general corporations, while the members of the Paris Club report debts of the government and public institutions, the possibility of double accounting is judged to be low.

〈Table 8〉 Estimates of North Korea's debt to Berne Union members

(Million dollars, as of year-end)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Debt to Berne Union members	1,662	1,626	1,448	1,487	1,397	3,827	1,534	726	75	10

Source: Joint External Debt Hub (JEDH) website.

① Debt to international financial institutions (Change font here to TNR)

North Korea's debt to international financial institutions is estimated at 95 million dollars as of the end of 2021, based on loans from the International Fund for Agricultural Development and the OPEC International Development Fund.

〈Table 9〉 Estimates of North Korea's debt to international financial institutions

(Million USD, as of year-end)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
International financial institutions	100	102	97	94	93	96	95	94	96	95
(International Fund for Agricultural Development)	61	63	58	56	54	57	56	55	58	56
(OPEC Fund for International Development)	39	39	39	39	39	39	39	39	39	39

Source: IFAD Annual Report 2021, OFID (OPEC Fund for International Development) website. <https://opecfund.org/>.

The International Fund for Agricultural Development (IFAD) is an UN-affiliated organization established in 1977 to support increased food production in rural areas in developing countries. As of the end of 2021, the organization is estimated to have held claims against North Korea worth 56 million dollars.

During the period 1995-2000, the IFAD approved a total of 69.08 million dollars in loans to support sericulture development, increased grain and livestock production, and food security in the highlands of rural North Korea. The IFAD reported in its 2019 annual report that North Korea actually borrowed 50.5 million dollars, or 73% of the approved amount of 69.08 million dollars, of which 10.5 million dollars was repaid. Based on this, the figures are estimated assuming repayment in equal amounts (950,000 dollars) every year during 2008-2019. Assuming 50.5 million dollars in 2008 in loan balance and 40 million dollars in loan balance at the end of 2021, about 800,000 dollars is repaid evenly each year.

〈Table 10〉 Details of International Fund for Agricultural Development (IFAD) loans to North Korea

(Million USD)

	Total Project Cost1)	IFAD Financing	Approval Year	Interest Rate
• Sericulture Development Project	24.25	15.73	1995	..
• Crop and Livestock Rehabilitation Project	32.10	28.91	1997	..
• Uplands Food Security Project	41.77	24.44	2000	0.75%
Total	98.12	69.08	-	-

Note: 1) The total amount of funds required for the project, such as IFAD loans and financial funds from the beneficiary countries.
 Source: IFAD website.

The OPEC Fund for International Development (OFID) is a development finance institution established in 1976. It carries out cooperative projects to promote economic and social development in low-income countries. As of the end of 2021, the organization holds 38.9 million dollars of claims against North Korea.

The OFID is known to have approved a total of 38.9 million dollars in loans between 1996-2002 to support the construction of hospitals, irrigation canals, and roads in North Korea. Since only information about the approved amounts exists and there is no information about the loan amounts or repayment amounts, the entire approved amount is calculated as external debt.

(Table 11) Details of OPEC International Development Fund (OFID) loans to North Korea
(Million USD)

	Total Project Cost1)	OFID Financing	Approval Year	Interest Rate
• Rehabilitation and Expansion of Pyongnam Area Hospital Project	12.1	6.0	1996	..
• Irrigation Rehabilitation Project	48.4	10.0(Pyongnam) 8.0(Pyongnam) 10.2(Pyongbuk)	1999 2000 2002	..
• Sinhung-Songgwan Road Project	7.5		2001	..
Total	68.0		-	-

Note: 1) The total amount of funds required for the project, such as OFID loans and financial funds from the beneficiary countries.

Source: OFID website.

2) Estimates of North Korea's debt to financial institutions

North Korea's debt to Western financial institutions can be divided into debt to BIS banks and debt to Western syndicated loan participants, estimated at 3.586 billion dollars as of the end of 2021.

<Table 12> North Korea's debts to Western financial institutions

(Million USD, as of year-end)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Debts to Western financial institutions	3,340	4,375	3,193	3,155	3,024	3,297	3,273	3,323	3,692	3,586
Debts to BIS banks1)	38	898	38	83	27	28	29	34	39	80
Debts to Western syndicated loan participants2)	3,302	3,477	3,155	3,072	2,997	3,269	3,244	3,289	3,653	3,506

Note: 1) Based on 32 of the 63 BIS member countries reporting Consolidated Banking Statistics (CBS)

2) Sixty banks from the U.K., Italy, Switzerland, Spain, Germany, France, etc., participated in syndicated loans.

① Debt to BIS banks

North Korea's debt to BIS banks is listed in the Joint External Debt Hub (JEDH) and is estimated at 80 million dollars as of the end of 2021 based on Consolidated Banking Statistics. BIS International Banking Statistics are prepared on the basis of Consolidated Banking Statistics and Locational Banking Statistics, which exclude transactions of related companies, and are considered to record debt situations more accurately. Based on locational banking statistics, it was estimated at 83 million dollars as of the end of 2021.

Meanwhile, IMF external debt statistics show 22 million dollars in debt securities as of the end of 2021. However, that was not included in the total external debt because it was judged that it could overlap with the debt of the BIS International Banking Statistics. Creditors in the IMF's debt securities statistics are banks, governments, and corporations, while the creditors in the BIS's debt statistics are limited to banks.

② Debts to Western syndicated loan participants

Western commercial banks lent syndicated loans to North Korea in the early 1970s. Since then, however, bad loans have occurred. In March 1997, the balance of North Korean external debt was compounded by

applying the agreed interest rate at the time of debt adjustment in 1980 to the balance of debts to the Western syndicated loan participants confirmed by U.S. federal courts.

In April 1992, Western commercial banks won a case against the Foreign Trade Bank of the DPRK at the International Court of Arbitration, which U.S. federal courts confirmed in March 1997, with a bond value of 929 million Deutsche marks and 1,165 million Swiss francs.³¹

<Table 13> The North Korean debt that U.S. federal courts confirmed in March 1997

	Million DEM	Million CHF
Principal	395.1	547.2
Interest	534.4	617.9
Total	929.5	1,165.1

Some of these were securitized in 1977 in the form of participation certificates and some in the form of asset-backed securities (ABS) and traded in international financial markets. Syndicated loans from Western commercial banks to North Korea were converted into Transferable Participation Certificates in around 1977 as North Korea's defaults continued.³² Then, in 1997, creditors issued asset-backed securities on the basis of a certificate of participation. As syndicated loans made to North Korea by Western commercial banks in the early 1970s have defaulted since the 1980s, in 1997 creditors negotiated to rebalance the principal to about 1 billion dollars. In 1977, bonds totaling 600 million dollars³³ at 7.47 billion Deutsche marks and 4.89 billion Swiss francs were securitized in the form of participation certificates. In 1997, BNP Paribas established the

31 Chiyong An, "North Korea's unrepaid debt to 60 Western banks 4 trillion won... In 40 years, not a single penny has been repaid," *SUNDAY Journal USA*, June 1, 2017.

32 Bank of Korea, "North Korea debt prices fall to record lowest level," *Bank of Korea Local Information* (2009), 2. [in Korean]

33 The value of bonds is converted at the exchange rate as of the end of 1977.

NK Debt Corporation to issue asset-backed securities.³⁴ The issuance is said to be worth 777 million Deutsche marks³⁵, which is part of the principal amount of non-performing loans. The bonds were issued as zero-coupon and their maturity was reportedly extended to March 12, 2010.

2) Summing up the results of estimating the size of North Korea's external debt

Results estimated by creditor (public institution, financial institution) based on the IMF's External Debt Statistics Guide show that North Korea's external debt is estimated to be 5.9~14.7 billion dollars as of the end of 2021.

The breakdown of public institution debt is estimated at 2.1 dollars billion for members of the Paris Club, 0.1~8.9 billion dollars for non-members of the Paris Club, 95 million dollars for international financial organizations, and insignificant debt for Berne Union members. Debt to Paris Club members shrank significantly in 2014 due to Russia's massive debt relief and stands at 2.1 billion dollars as of 2021. Debt to non-members of the Paris Club continued to increase due to China continuing to provide crude oil, accounting for 60.3% of total external debt as of the end of 2021. However, if China's supply of oil through pipeline to North Korea turns out to be free aid rather than loans, the size of its debt to non-members of the Paris Club would be reduced to 0.1 billion dollars at the end of 2021. Debt to financial institutions was estimated at 3.6 billion dollars, with insignificant debt to BIS banks, but 3.5 billion dollars in debt to Western syndicated loan participants.

³⁴ Bank of Korea, "North Korea debt prices fall to record lowest level," *Bank of Korea Local Information* (2009), 3. [in Korean]

³⁵ This was 440 million dollars at the exchange rate at the end of 1997.

<Table 14> Estimates of North Korea's total external debt¹⁾

(Billion USD, as of year-end)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Total North Korean external debt	21.1 (15.4)	22.9 (16.6)	14.1 (7.3)	14.2 (7.2)	14.1 (6.8)	17.2 (9.6)	15.2 (7.2)	14.6 (6.4)	14.6 (6.2)	14.7 (5.9)	[100.0]
Debt to public institutions	17.7 (12.0)	18.5 (12.2)	10.9 (4.1)	11.1 (4.0)	11.1 (3.8)	13.9 (6.3)	11.9 (4.0)	11.3 (3.1)	11.0 (2.5)	11.1 (2.3)	[75.6]
(members of the Paris Club)	10.2	10.4	2.5	2.4	2.2	2.3	2.3	2.2	2.3	2.1	[14.5]
(non-members of the Paris Club)	5.8 (0.1)	6.4 (0.1)	6.9 (0.1)	7.2 (0.1)	7.4 (0.1)	7.7 (0.1)	8.0 (0.1)	8.3 (0.1)	8.5 (0.1)	8.9 (0.1)	[60.3]
(members of the Berne Union)	1.7	1.6	1.4	1.5	1.4	3.8	1.5	0.7	0.1	0.0	[0.1]
(international financial organizations)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	[0.6]
Debt to financial institutions	3.3	4.4	3.2	3.2	3.0	3.3	3.3	3.3	3.7	3.6	[24.4]
(BIS banks)	0.0	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	[0.5]
(Western syndicated loan participants)	3.3	3.5	3.2	3.1	3.0	3.3	3.2	3.3	3.7	3.5	[23.9]

Note: 1) Based on published materials

2) The figure in parenthesis excludes debt related to China's supply of oil through pipeline to North Korea

2) The figures in square brackets represent the proportion of total external debt (%).

It is necessary to compare estimates from this paper with estimates from the Korean government and OECD, but it is not possible to compare them based on the same time period. Due to data constraints, this study was estimated for the period after 2012. This paper's 15.4~21.1 billion dollars as of 2012 seems to be a little more than the South Korean government's 12.5 billion dollars as of 2000, but considerably more than the OECD's 7.3 billion dollars as of 2002.

Meanwhile, North Korea's total external debt as a percentage of GNI was estimated at 87% as of 2018 based on GNI provided by the UN, making it one of the 37 highest-debt poor countries (HIPC; Heavily Indebted Poor Countries). However, if China's supply of oil through pipeline to North Korea turns out to be free aid, North Korea's total external debt as a percentage of GNI is reduced to 41% as of 2018. The ratio of North Korea's

foreign debt to GNI is at a relatively high level, ranking 4th to 15th among 37 highly indebted poor countries as of 2018.

〈Table 15〉 North Korea's External Debt/GNI Ratio

	2014	2018
D.P.R. of Korea	81(42)	87(41)
Mozambique	78	108
Mauritania	85	93
Nicaragua	87	91
Zambia	35	74
Rwanda	37	59
São Tomé and Príncipe	65	59
Senegal	29	53
Congo, Republic of	33	51
Uganda	32	46
Guyana	77	45
Sierra Leone	29	45
Liberia	24	45
Gambia, The	43	43
Honduras	41	43
Côte d'Ivoire	28	38
Ghana	34	36
Benin	21	36
Niger	25	36
Bolivia	28	34
Tanzania	30	33
Central African Republic	35	33
Togo	21	33
Ethiopia	31	33
Madagascar	29	32
Malawi	28	32
Cameron	17	30
Chad	28	29
Mali	25	29
Guinea-Bissau	25	29
Haiti	22	23
Burkina Faso	21	23

	2014	2018
Burundi	26	19
Comoros	12	17
Guinea	17	16
Afghanistan	13	13
Congo, Democratic Republic of	17	11

Notes: 1) HIPC percentage is calculated based on GNI provided by the World Bank.

2) The figures in parentheses are foreign debt without China's supply of oil to North Korea / GNI ratio.

Source: World Bank, International Debt Statistics 2020

5. Summary and Implications

This paper estimated North Korea's foreign debt balance using published data. This paper differs from previous studies in that the balance of external debt was calculated according to international statistical standards and the total balance of external debt is calculated after including the credits of non-members of the Paris Club and international financial institutions, which are excluded from the Joint External Debt Hub (JEDH). In particular, in this process, whether or not the external debt items are double counted is reviewed.

North Korea's total external debt was estimated at 5.9~14.7 billion dollars as of the end of 2019. Among them, debt to public institutions accounted for 2.3~11.1 billion dollars, and debt to financial institutions accounted for 3.6 billion dollars.

Based on the estimates of this paper, the following implications may be suggested regarding the high level of external debt and likelihood of an overwhelmingly high share of debt to China. First, North Korea's total external debt is estimated to be in the range of 41-87% compared to North Korea's GNI. Difficulties in attracting foreign investment for economic development are expected to increase due to the high level of external debt in North Korea. And it is clear that such an increase in external debt will cause some problems in repayment of external debt in the event of inter-Korean economic integration. This is because creditors expect South Korea to inherit North Korea's foreign debt in the event of economic integration between South and North Korea, and international law and

international practice will force it to repay a large part of it.³⁶ Second, North Korea's debt balance to China as of the end of 2021 was estimated to be 8.8 billion dollars if we consider crude oil supply through pipelines as debt and accumulate it to 2021. It is said that the high share of debt to China may lead to an increase in the Chinese economy's influence over North Korea. If the debt to China is overwhelming, it is possible that North Korea may significantly lose its bargaining power in its economic transactions with China in terms of price, volume and ancillary conditions. On the other hand, China's direct investment in North Korea is not subject to external debt statistics, but since it has a significant impact on the North Korean economy, it seems necessary to understand the trend and details of the change.

However, there are limitations in estimation, such as the possibility of missing items due to non-disclosure of information by some creditors. Above all, there is a limitation that external debt such as trade credit and pensions, which are classified as debt by the IMF standards, has not been calculated. Especially, as trade between North Korea and China is becoming more active, it is necessary to capture trade credit between companies. Moreover, in the case of the non-members of the Paris Club, it is likely that the debt to some countries was not captured at all due to information constraints. Therefore, the estimates in this paper have the potential to be underestimated. In the future, efforts to collect basic data should be strengthened in order to improve the accuracy of North Korea's external debt statistics.

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36 Sangsan Lee, "Seeking a solution to North Korea's external debt," *North Korea Survey Research* (1998): 185. [in Korean]

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