



Diagnosis of revenue conditions caused by the COVID-19 crisis based on revenue flow characteristics by economic crisis

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Rising concerns

- With the global spread of COVID-19, the overall economy shifted to a crisis phase accompanied with a decline in revenue flow.
 - National tax revenue from January to April decreased by 7.9% (-8.7 trillion won) from the same period last year.
- As uncertainties increase across the economy, it is difficult to predict the depth and duration that the economic shock will have on revenue conditions.
 - In general, major institutions expect a modest recovery of the economy in the second quarter at the earliest, but there are various opinions about the speed and path of recovery.
- We will look at the characteristics of revenue flows by economic crisis and draw implications for the direction of revenue conditions caused by the COVID-19 crisis.
 - The Korean economy experienced a remarkable decline in the revenue growth rate due to the impact of two economic crises: the Asian Financial Crisis (1997-1998) and the Global Financial Crisis (2008-2009).

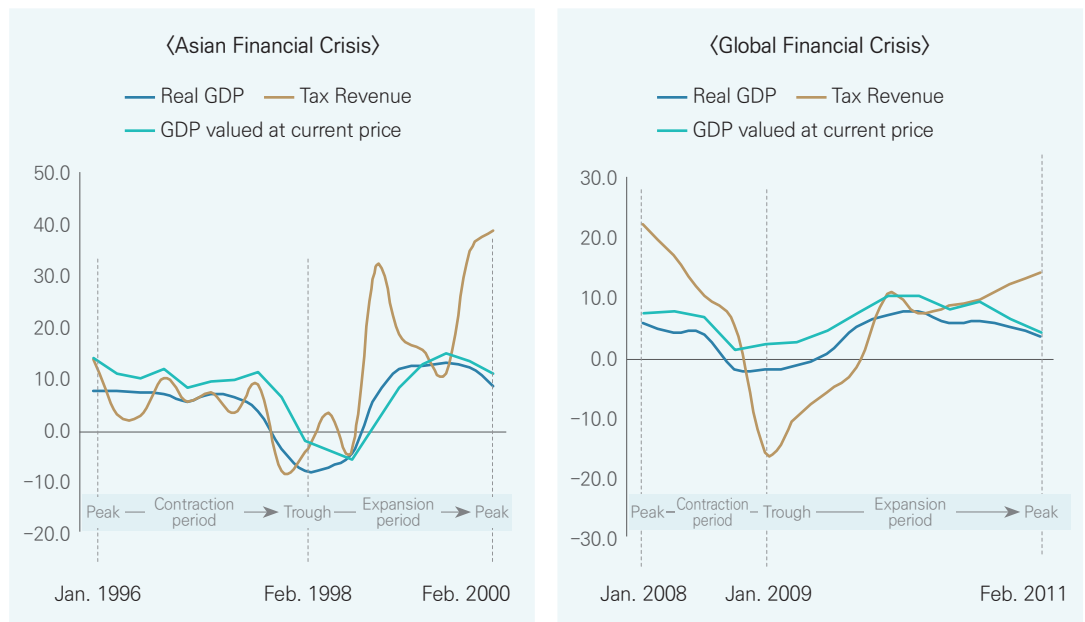
A. Economic growth rate and tax revenue growth rate

- When comparing the Asian Financial Crisis(1997-1998) and the Global Financial Crisis (2008-2009), the degree and the duration of slowdown in the rate of increase in national tax revenue compared to the growth rate differ by economic crisis.
 - There is no doubt that the growth rate and the direction of national tax revenue move in parallel from a long-term perspective (Pro-cyclicity), but the degree of slowdown and the recovery of national tax revenue compared with that of economic growth rate differ by economic crisis.

- In the following, economic shock and revenue shock are measured in terms of duration and amplitude (ratio of amplitude to duration) trend by business phase.
- **Duration:** The number of months from peak to trough (contraction phase) or trough to peak (expansion phase) of the business cycle reference date, including the period in which the crises have occurred.
- **Amplitude of real GDP and national tax revenue:** The change (%) from peak to trough (contraction phase) of the real GDP growth rate or the national tax revenue growth rate (%) or the change from trough to peak (expansion phase) of the real GDP growth rate or the national tax revenue growth rate.
- **Slope by business phase:** As a ratio of amplitude to duration, it shows how steeply real GDP or national tax revenue have decreased or increased (steepness).

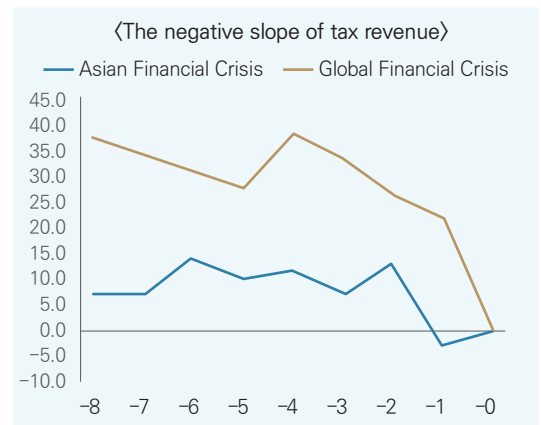
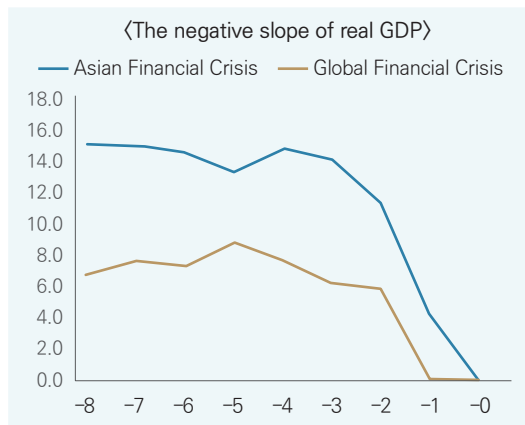
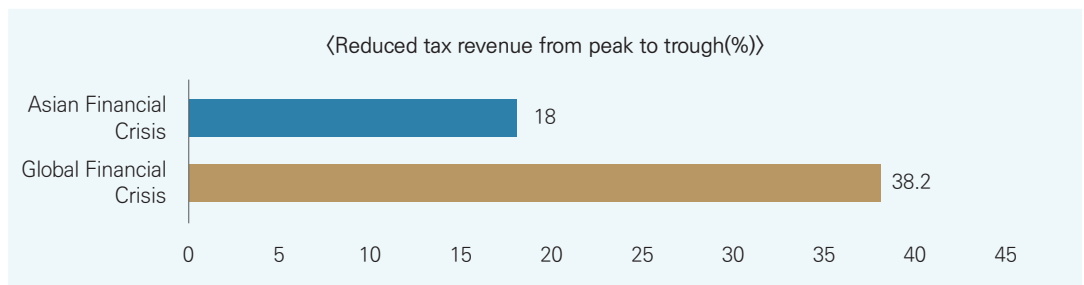
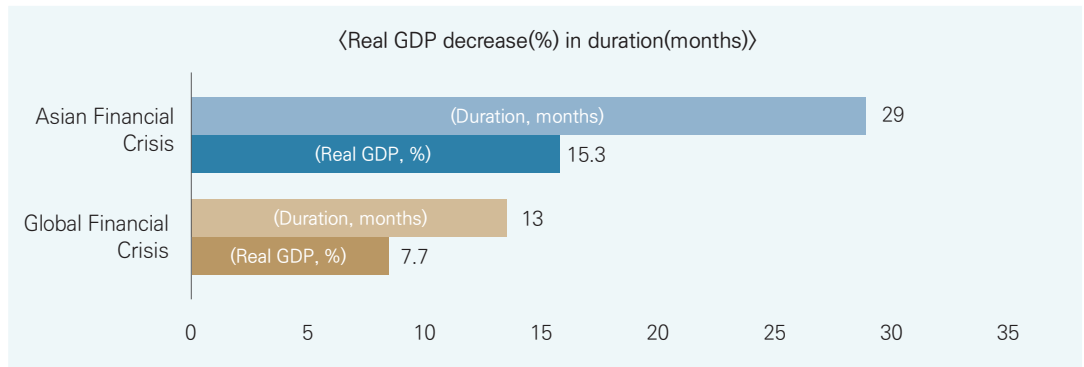
[Figure 1] Economic growth rate and tax revenue growth rate by different phases of the business cycle

(Unit: YoY, %)



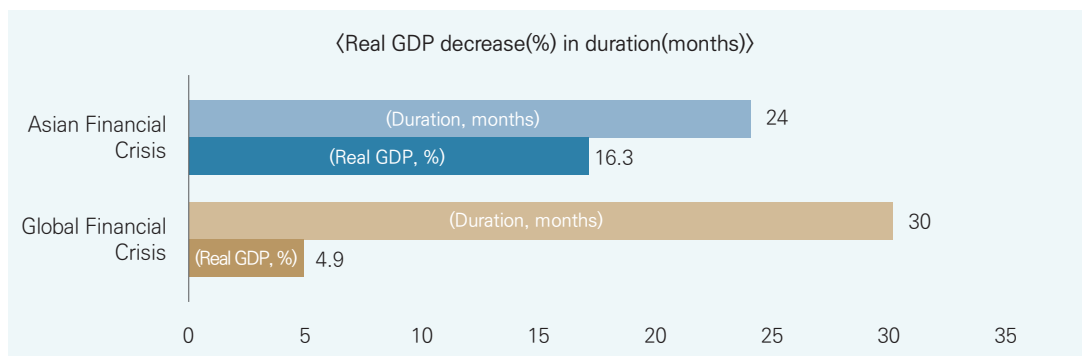
Note: 1. Analyzed the period from peak-to-peak based on the business cycle reference dates published by Statistics Korea
 2. To smooth the differences in data collection periods by different business phases, the YoY quarterly cumulative amount increase/decrease rate is used.
 3. The tax revenue rate increase was calculated excluding the tax reduction effect due to the local consumption tax rate increase and the expansion of EITC.

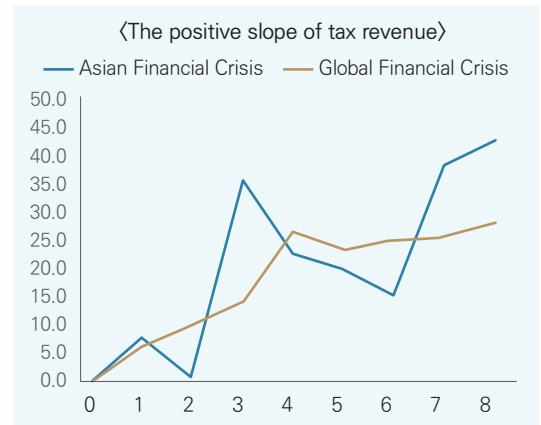
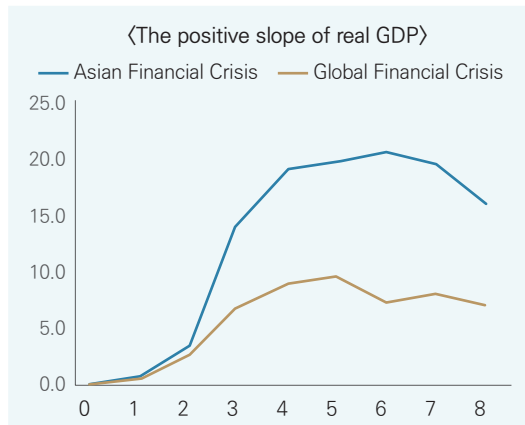
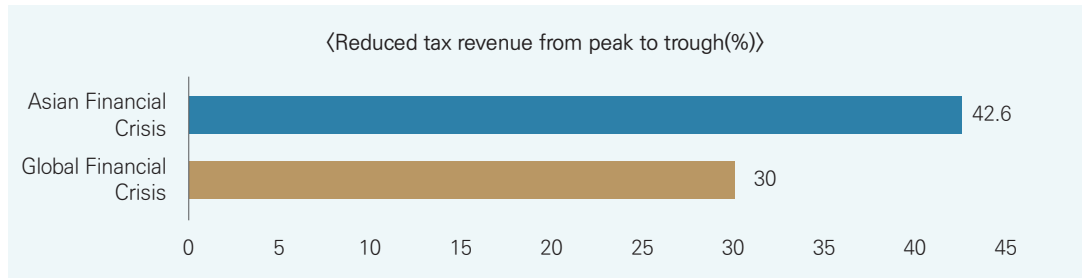
- **(Contraction period) Although the economic shock during the Asian Financial Crisis was much more severe, the revenue shock was relatively moderate and the revenue shock during the Global Financial Crisis was relatively steep compared to the slowing growth rate.**



Note: 1. It is a standardized value based on the value of the trough point (t=0) (median value=0)

- (Expansion period) During the expansion period immediately after the Asian Financial Crisis, the tax revenue rate increase showed a sharp rebound, far exceeding the level before the crisis, thanks to the rapid economic recovery. Meanwhile, tax revenue showed a relatively modest rebound after the Global Financial Crisis.





주: 1. It is a standardized value based on the value of the trough point (t=0) (median value=0)

B. Cause of differences by crisis

- The Global Financial Crisis can be characterized as a highly synchronized recession around the world, whereas the Asian Financial Crisis can be characterized as a crisis in which global synchronization was relatively low.
 - According to the IMF (2009), the globally synchronized economic crisis had a more serious negative impact on the economy, and the recovery speed and level of recovery were relatively weak

- Due to the characteristics of each crisis, tax revenue showed a type \checkmark flow during the Asian Financial Crisis, and type ∇ in the Global Financial Crisis.

- In the following, we examine in greater detail the causes of different patterns of tax revenue flow by crisis.

(1) Comparing the different patterns in business contraction period

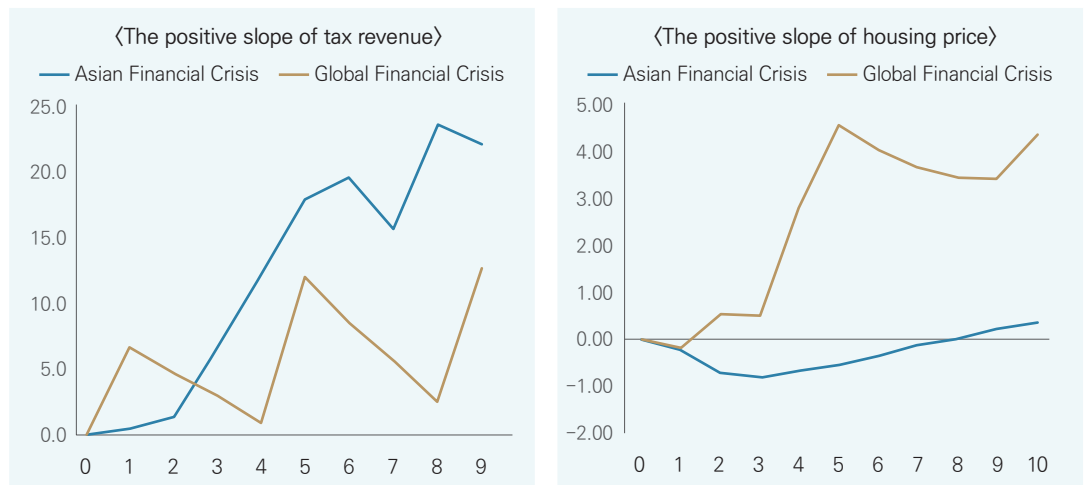
- (Asian Financial Crisis) Despite the intensity of the economic shock during the Asian Financial Crisis, the reason for the relatively small revenue shock was that price indicators such as high prices, interest rates, exchange rates, and oil prices buffered the reduction of tax revenues caused by the shock in the real economy.

- Value-added tax and earned income/individual income tax declined due to shrinking consumption and mass unemployment, but interest and dividend income tax and oil-related taxes increased significantly as price indicators such as nominal interest rates and inflation record high levels.

- **(Global Financial Crisis)As the corporate tax declined due to worsening external conditions and the asset market boom in the previous expansion was extinguished, a large decrease in asset-related tax revenues, such as those from the capital gains tax, resulted in relatively large tax impacts compared to the period of slow growth.**

- During the contraction period, the contribution of asset-related tax revenue was the largest at -1.7 among tax revenue growth rates.

[Figure 2] Major indicators during expansion period before the crisis



Note: 1. This is a standardized value based on the value (median=0) of the trough point (t=0) of the previous circulatory period.
 2. For housing prices, the long-term trend is calculated using the HP filter, and deviation from the long-term trend is used as a housing price index.

(2) Comparing the different patterns in business expansion period.

- **(Asian Financial Crisis)After the crisis, the results of structural reforms in the corporate and financial sectors led to an increase in economic efficiency, raising revenue capacity to the next level.**

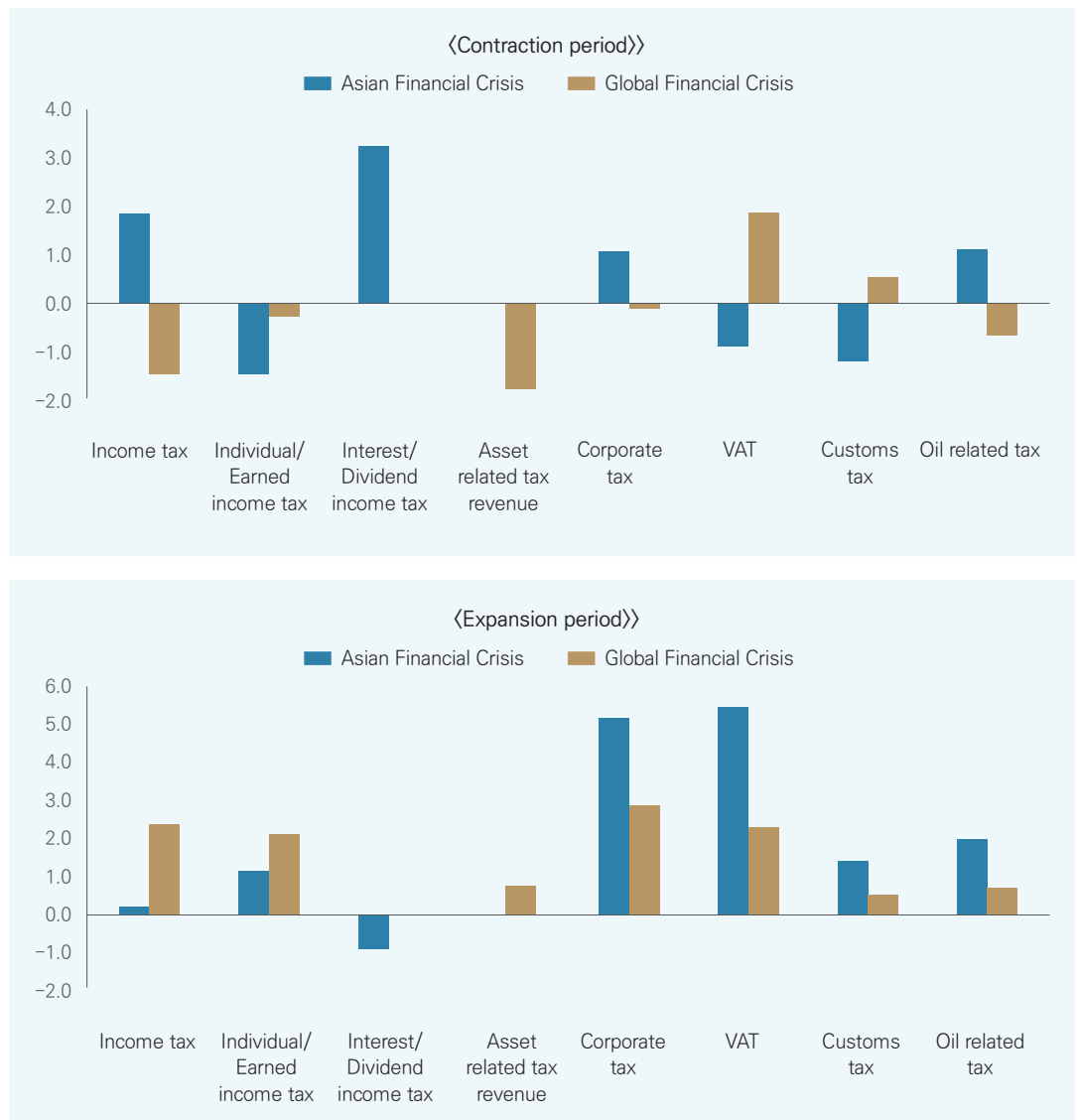
- Corporate income tax and value-added tax rebounded at a high rate of increase due to the improvement of corporate profit structure following corporate sector structural reform and the rapid recovery of private consumption following the overcoming of the crisis.

- The rate of increase for Total Factor Productivity (Hahn Jinhee, Shin Sukha(2007)): ('90-'00)0.8% → ('00-'05)2.0%
- Corporate operating surplus (ratio to GDP): ('90-'96)14.57% → ('99-'05)17.77%
- Tax burden rate: ('94-'98) 16.3% → ('00-'04) 17.3%

● (Global Financial Crisis)As the Global Financial Crisis spread to the European Debt Crisis, the speed and degree of economic and tax recovery were relatively weak due to stagnant exports and private consumption.

- Although major tax items such as corporate tax have returned to an increase, the tax revenue growth rate has not recovered to that prior to the crisis due to a temporary decrease in windfall tax and a weak recovery in private consumption.

[Figure 3] Contribution of tax revenue growth rate by tax items per business phase

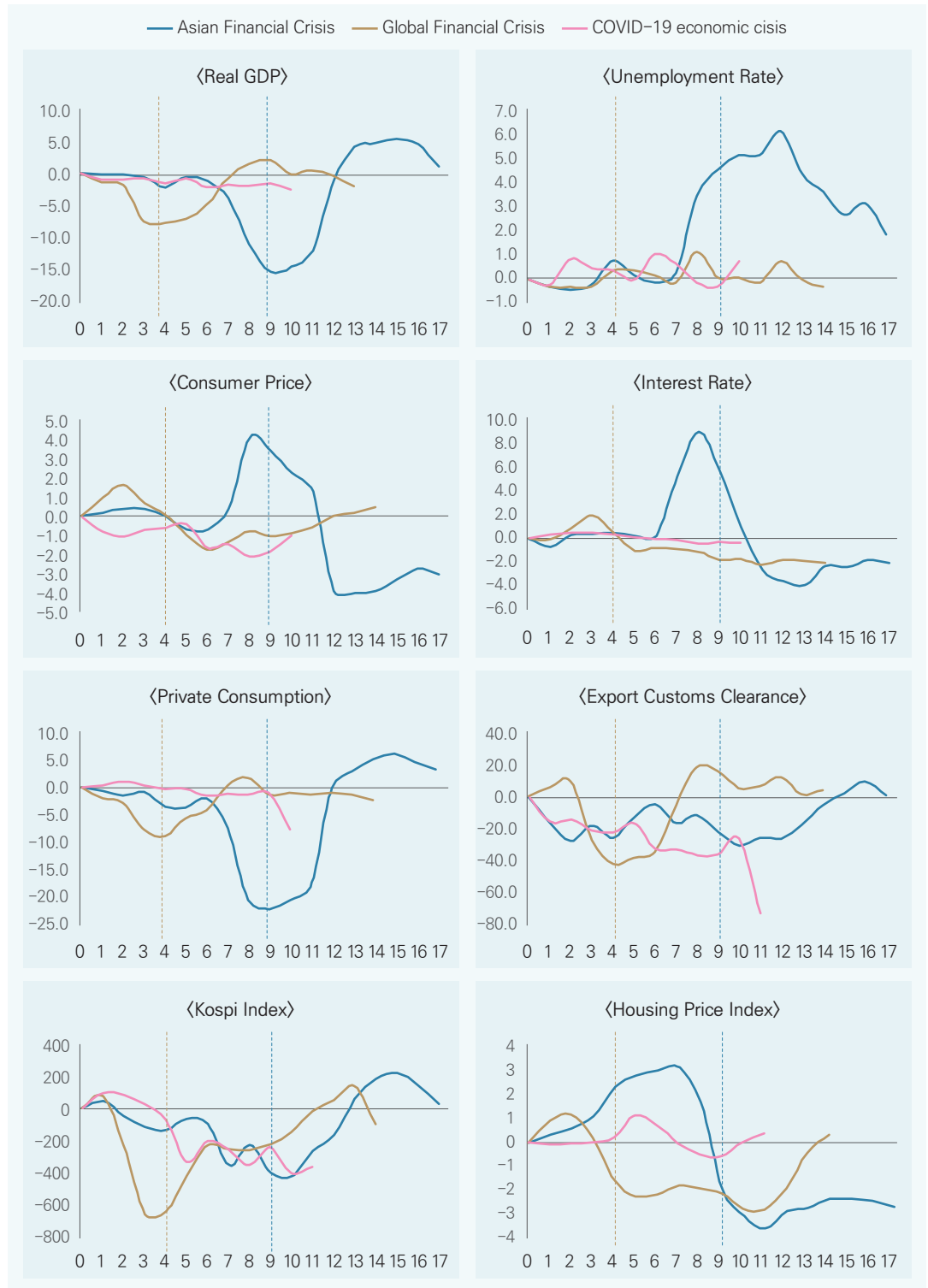


Note: 1. Due to the absence of a long-term series of quarterly tax revenue data, the contribution by tax item was calculated as an annual rate increase or decrease. The business phase is calculated based on the contraction periods of the Asian Financial Crisis(96-98) and the Global Financial Crisis(07-09), and the expansion periods of the Asian Financial Crisis(98-00) and the Global Financial Crisis(09-11).

2. Asset-related tax is based on the sum of capital gains tax, securities transaction tax, individual income tax, inheritance tax, and gift tax.

3. Oil-related tax is the sum of oil tax from traffic and energy, environment tax, individual consumption tax, oil tax, and value-added tax.

[Figure 4] Comparison of major indicators by economic crisis



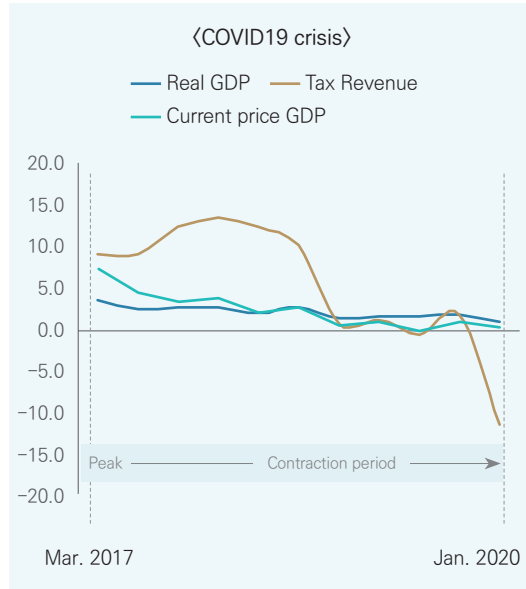
Note: 1. Analyzed the period(quarterly) from peak-to-peak including the period in which the economic crises have occurred based on the business cycle reference dates published by Statistics Korea. The COVID-19 crisis is represented by the last peak to the most recent period.
 2. The vertical, dashed graph represents the trough of each crisis.
 3. The figures are in real values, unless otherwise specified, and they are a standardized value based on the peak (peak, t=0, median=0) of the increase rate when compared to the same period last year.
 4. For the KOSPI index and home price index, the long-term trend is calculated using the HP filter and the deviation from the long-term trend is used as an indicator.

2020 Tax Revenue Outlook

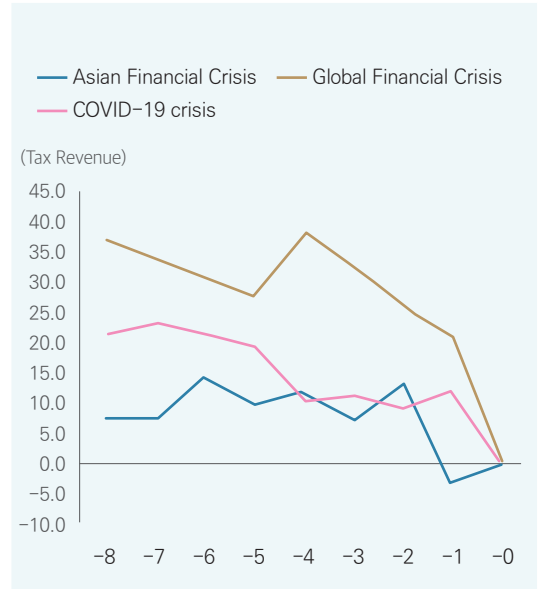
- During the contraction period from the COVID-19 crisis, national tax revenue growth rate declined sharply when compared to the economic growth rate.

[Figure 5] The economic growth rate and tax revenue growth rate

(Unit: %)



[Figure 6] Tax revenue reduction slope by crisis



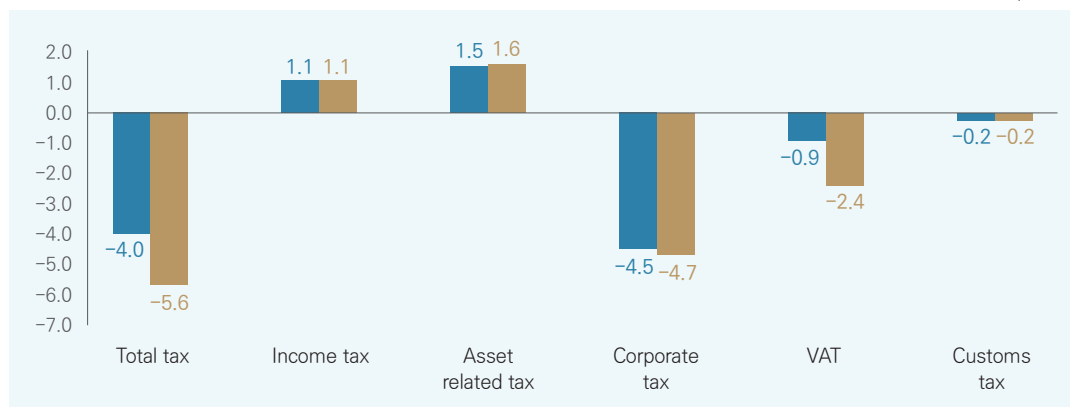
Note: 1. The increase in the national tax revenue rate is calculated by excluding the effect of tax reductions resulting from an increase in the local consumption tax rate.

- In 2020, national tax revenue is expected to decrease by KRW 16.7 trillion (-5.7%)¹⁾ to KRW 276.7 trillion when compared to 2019, which is KRW 3 trillion lower than the government's supplementary budget (KRW 279.7 trillion).
 - Of the YoY total national tax growth rate of -5.7%, the impact on corporate tax is expected to be the largest because of worsening external conditions and the subsequent decrease in corporate income (contribution: -4.7%).
 - Consumption-related tax revenue is expected to decrease further from Q2 when the COVID-19 effect is fully reflected in the tax revenue.
 - Private consumption in Q1 (compared to the previous cycle): -6.4%, consumer sentiment index: (January 2020) 104.2, (May 2020) 77.6.
 - On the other hand, the positive flow of tax revenue in the strong asset market, which separated from the real economy, buffers the rapid decrease in general tax revenue.
 - The contribution of asset-related taxes such as capital gains tax and securities transaction tax is +1.6%.

1) -4.0%, excluding the effect of reduced national tax revenue resulting from an increase in the local consumption tax rate (6%).

[Figure 7] 2020 national tax revenue(outlook) increase/decrease compared to the previous year and contribution by tax category

(Unit: %)



Note: 1. The orange bar graph is the basic scenario, and the blue bar graph is calculated excluding the effect of VAT reduction caused by the local consumption tax rate increase.

2. Asset-related tax refers to the sum of capital gains tax, securities transaction tax, individual income tax, inheritance tax, and gift tax.

[Table 1] 2020 National Tax Revenue(Outlook)

(Unit: KRW trillion, %)

| | 2019 Performance (A) | 2020 | | | | | |
|----------------------------------|----------------------|----------------------------------|-----------------|------------------|-------------|--|-----------------|
| | | The supplementary budget bill(B) | NABO Outlook(C) | Changes YoY(C-A) | | Changes compared to that of supplementary budget bill(B-C) | |
| | | | | Amount of change | Change rate | Difference | Difference rate |
| National tax | 293.5 | 279.7 | 276.7 | △16.7 | △5.7 | △3.0 | △1.1 |
| Income tax | 83.6 | 88.5 | 87.0 | 3.4 | 4.1 | △1.5 | △1.7 |
| Corporate tax | 72.2 | 58.5 | 58.3 | △13.9 | △19.3 | △0.2 | △0.4 |
| Inheritance and gift tax | 8.3 | 8.4 | 8.8 | 0.5 | 5.7 | 0.4 | 4.6 |
| VAT | 70.8 | 64.6 | 63.7 | △7.1 | △10.1 | △0.9 | △1.4 |
| Individual consumption tax | 9.7 | 9.5 | 9.2 | △0.5 | △5.2 | △0.3 | △2.8 |
| Securities transaction tax | 4.5 | 4.9 | 5.2 | 0.7 | 15.9 | 0.2 | 5.0 |
| Traffic, energy, environment tax | 14.6 | 15.5 | 15.3 | 0.7 | 5.1 | △0.2 | △1.0 |
| Customs tax | 7.9 | 7.7 | 7.2 | △0.7 | △8.6 | △0.5 | △6.6 |
| Others | 21.9 | 22.2 | 22.1 | 0.2 | 0.7 | △0.1 | △0.4 |

Source: NABO

- **As the spread of COVID-19 is unfolding into a globally synchronized economic crisis, the downside risk of revenue conditions increases, suggesting that the speed of recovery may also proceed slowly.**
 - Specifically, it is important to note that the negative impact may be significant given that Korea's economic structure has high external dependency and a high proportion of global investment in exports, as well as a high dependence on corporate tax for total tax revenue.
 - The share of corporate tax revenue to total tax (2018, %): Korea (15.7) OECD (8.8)
- **It is difficult to eliminate the future possibility that if risk in the real economy spreads to create an asset market shock, it would lead to a sharp contraction in asset-related tax revenues, which are currently mitigating the tax shock in 2020.**