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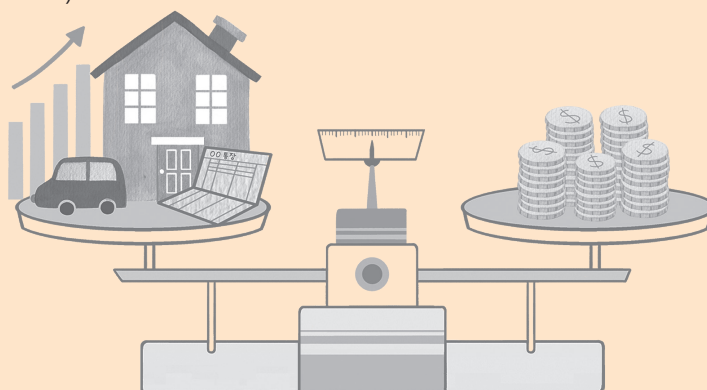
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Examining the Liquidity Risk in the Household Sector and the Policy Implications

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Summary

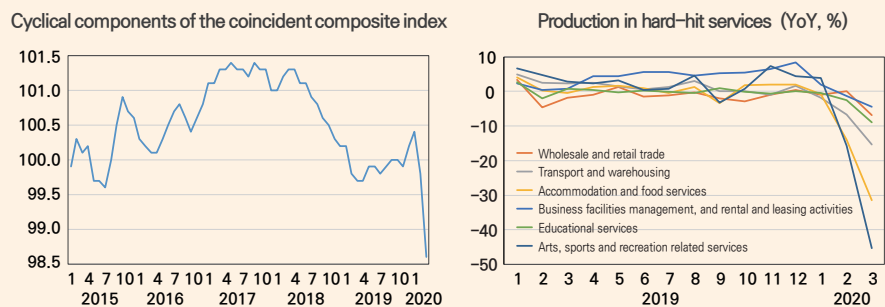
- In the wake of an unprecedented health crisis, households who lack liquid assets that could tackle their growing deficit (=income-expenditure) will endure severe financial difficulties.
- The share of households facing liquidity risk will increase as incomes fall by bigger margins and exposure to the shock intensifies.
- The liquidity risk resulting from COVID-19 will be even more pronounced among the economically vulnerable; specifically, those in the bottom quintile in terms of income and net assets, and temporary and daily wage workers.
- Households at liquidity risk are particularly concentrated in the low income quintile. As such, a short-term income support program offering even a small amount of aid (e.g. 1 million won) could greatly help to reduce their liquidity risk.
- In terms of support for at-liquidity-risk households, a selective approach which focuses the income support on the economically vulnerable and provides credit support in the form of collateral loans to asset-owning households will be more effective in easing the liquidity risk and the government's fiscal burden.

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Issues

- As the financial soundness of cash-strapped households deteriorates amid the COVID-19 crisis, some studies have presented the possibility that more households will face the risk of default.
 - Adjusting expenditure is difficult even in the midst of a pandemic, and as such, the number of households facing financial instability is expected to increase.
 - Despite an economic recession and loss of income, cutting back on spending (consumption, debt repayment, etc.) is not an easy task (Figure 1).
 - Reduced cash flows owed to falling net incomes (=income-expenditure) could undermine financial soundness, amplifying the risk of default for households.

[Figure 1] Pandemic-induced Recession and Slowing Production (COVID-19)



Source: Statistics Office, 'KOSIS Composite Economic Indexes'; KOSIS National Statistics Portal, 'Index of Services by Industry Section' (<http://kosis.kr/>, last access: May 12, 2020).

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Stress Testing Liquidity Risk

- In particular, households with insufficient liquid assets to cushion the blow to their cash flows may end up in serious financial danger.
 - If conditions worsen, it would entail not only a cut back in consumption but also daily hardships and possible defaults.
 - Thus, it is important for households to secure a minimum amount of assets that could be readily converted into cash to protect against the shocks from the COVID-19 crisis.

- Accordingly, this study aims to analyze the liquidity risk to households resulting from the pandemic-induced crisis using stress testing, and to evaluate the effects of support policies.

- The level of liquidity risk experienced by households can be assessed based on the size of liquid assets relative to the deficit in total income and expenditure (financial margin).
 - A downturn in household income serves as a diminishing/deficit factor to the financial margin.
 - 'Financial margin' is defined as the gap between income and expenditure in regards to living expenses.
 - Household income is estimated based on the disposable income which precludes non-consumption expenditure such as taxes and social insurance premiums from the current income.
 - 'Expenditure for living expenses' refers to the minimum cost of living, and includes basic living expenses and debt repayment.
 - * In this study, the basic cost of living includes expenses for food, housing, education, healthcare, transportation and communications from the 'main household expenditure' category in the 'Survey of Household Finances and Living Conditions,' and excludes 'other consumption expenditures' which are those that can be temporarily suspended or deferred.
 - The accumulated deficit is determined by the monthly average and duration of deficit.
 - * It is assumed in this study that the duration is three months.
 - Households are deemed 'at liquidity risk' when the size of the accumulated deficit within the financial margin exceeds that of liquid assets.
 - Accordingly, households at liquidity risk can be considered to be those that have been lacking in deficit-absorbing liquid assets for three months.
 - * Of course, non-liquid assets such as housing can also be a source of cash via mortgages. However, the transaction costs and numerous regulations (LTV, DTI, DSR, etc.) make them impractical in cases of emergency.
 - * In this study, liquid assets include cash, money market deposit accounts (MMDA), installment and deposit savings and funds, savings insurance, and financial assets such as stocks and bonds from the 'Survey of Household Finances and Living Conditions.'

<Box 1> Definition and Calculation for 'Households at Liquidity Risk'

Financial margin (FM) = disposable income (Y) – debt service (DS) – basic cost of living (BC)

Household with deficit: Households with a 'financial margin (FM) < 0'

Cumulative deficit of household with deficit = monthly average deficit × duration (months)

Household at liquidity risk: Household with 'accumulated deficit > liquid assets'

Share of households at liquidity risk = number of households at liquidity risk/total number of households

- The share of at-liquidity-risk households was calculated using information at the household level.¹⁾
 - The scale was estimated using Statistics Korea's Survey of Household Finances and Living Conditions which includes information on the income, expenditure, assets, and liabilities of 20,000 household samples.
- The stress test of households' liquidity risk assesses the rise in the number of at-risk households in a stress scenario compared to the baseline scenario.
 - The baseline scenario is a criterion for comparison which uses the information on income, consumption, assets and debt by household compiled by the 2019 Survey of Household Finances and Living Conditions.
 - The stress scenarios assume 'extraordinary but possible' losses of income.
 - The bigger the fall in income, the higher the probability that the accumulated deficit will exceed the size of liquid assets which, in turn, will increase the number of households at liquidity risk.
 - By calculating the increase in the number of at-liquidity-risk households in the stress scenario compared to that in the baseline scenario, this study intends to assess the changes in liquidity risk resulting from an income shock.
- Various scenarios for income loss were considered with regards to the impact on household cash flow.
 - The first stress scenario hypothesizes that all household incomes have fallen at the same rate, and the second at different rates according to the industry the householder is engaged in (Table 1).
 - The first scenario assumes that income has fallen by 10% and 20%, respectively, compared to the baseline scenario.
 - In the complex (heterogeneous) scenario (second scenario), households were divided into two groups according to whether they were affected by COVID-19, and the income of each group is assumed to have fallen at different rates.
 - * The income loss of households with heads who work in pandemic-hit industries was set at –20% and –40%, and that of the other group at 0% and –10%.

1 Refer to Giordana and Ziegelmeyer (2019) and Karasulu (2008) for similar analytical and evaluation studies of households' financial soundness in terms of liquidity risk using household samples.

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Changes in Liquidity Risk on an Income Shock

<Table 1> Income Loss Stress Scenarios Compared to the Baseline Scenario

(%)

Category		Income of households with heads engaged in pandemic-hit industries	Income of other households
Scenario	Homogeneous 1	-10	-10
	Homogeneous 2	-20	-20
	Heterogeneous 1	-20	0
	Heterogeneous 2	-40	-10

Note: In the above table, industries hit hardest by COVID-19 are those that have posted negative growth rates in terms of the trends in industrial activities for February and March and Q1 GDP by economic activity. They include wholesale and retail trade, transport and warehousing, accommodation and food services, educational services, and arts, sports and recreation related services.

- This study only considers the stress of income loss and assesses its impact. However, if for example, factors such as the job-seekers allowance and employment support scheme were taken into account for the unemployment shock, it will ultimately be reflected in the income loss scenario.
 - Although not explicitly addressed in this analysis, if additional factors such as a depreciation in liquid-asset prices and a protracted loss of income are considered, the share of at-risk households could escalate.

- The share of at-liquidity-risk households changes as per the size of the income shock and number of households exposed to it (Table 2).
- The greater the income shock, the higher the share of households at liquidity risk.
 - The share of at-risk households increases 0.6%p (3.1% → 3.7%) on a 10% loss in total household income and 1.6%p (3.1% → 4.7%) on a 20% loss.
- Meanwhile, the share of at-risk households to total households is also significantly affected by the number of households exposed to an income shock.
 - The share of households at liquidity risk is higher on a 10% income loss in all households (0.6%p) than a 20% income loss in households headed by workers in pandemic-hit industries (0.2%p).

<Table 2> Stress-induced Changes in the Share of Households at Liquidity Risk to Total Households

(%p)

Baseline scenario	Income loss scenario			
	Homogeneous 1 (-10%)	Homogeneous 2 (-20%)	Heterogeneous 1 (-20%, 0%)	Heterogeneous 2 (-40%, -10%)
3.1%	0.6	1.6	0.2	1.2

- If household income and net assets are examined by quintile, the share of at-liquidity-risk households and the rate of increase escalate as the group becomes lower (Table 3).
- The share of at-liquidity-risk households due to a loss of income is much higher among households with less income and net assets.

- On a 20% loss of income, the share of at-risk households increases 4%p in the bottom 20% but only 0.3%p in the top 20%.
- In terms of net assets, it increases 4.9%p in the bottom 20% but merely 0.3%p in the top 20%.

<Table 3> Stress-induced Changes in the Share of Households at Liquidity Risk by Income and Net Assets Quintile

(%p)

Income loss scenario	Income quintile					Net asset quintile				
	1 st	2 nd	3 rd	4 th	5 th	1 st	2 nd	3 rd	4 th	5 th
Baseline scenario	7.7%	3.5%	2.0%	1.4%	0.8%	6.8%	3.2%	2.1%	1.7%	1.7%
Homogeneous 1 (-10% income)	1.5	1	0.3	0.3	0.1	1.9	0.6	0.3	0.2	0.1
Homogeneous 2 (-20% income)	4	2	0.9	0.7	0.3	4.9	1.3	0.8	0.5	0.3

■ By occupational status, the share of at-liquidity-risk households increases sharply among temporary and daily workers (Table 4).

- The increase in the share of at-risk households on an income shock is high among temporary and daily workers, and low among regular workers.
 - On a 20% loss of income, the share of at-risk households increases 0.9%p for regular and self-employed workers, and 2.1%p for temporary and daily workers.
 - If the income of households headed by a self-employed worker falls by a larger margin, the liquidity risk to such households will be greater than that of households headed by a regular worker.

<Table 4> Stress-induced Changes in the Share of Households at Liquidity Risk by Occupational Status

(%p)

Occupational status	Regular workers	Temporary & daily workers	Self-employed
Baseline scenario	2.3%	4.9%	2.8%
Homogeneous 1 (-10% income)	0.4	0.8	0.4
Homogeneous 2 (-20% income)	0.9	2.1	0.9

Note: Self-employed householders include the self-employed with or without employees, unpaid family workers, and others.

■ By industry, the share of households at liquidity risk is relatively high among groups with householders who work in industries hit hard by COVID-19 (Table 5).

- Income shocks have a stronger impact on households that are headed by workers in pandemic-affected industries, and as such, the share of at-risk households is also much higher.
 - Compared to the baseline scenario, the share of households at liquidity risk increases 1.2%p (3.6% → 4.8%) in the affected group on a 20% loss of income, and 0.7%p (2.9% → 3.6%) in the non-affected group on a 10% loss.

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Comparing Policy Support: Alleviating the Liquidity Risk and Fiscal Burden

<Table 5> Stress-induced Changes in the Share of Households at Liquidity Risk by Householders' Chosen Industry

Income loss scenario	Share of at-risk households in the pandemic-affected group	Share of at-risk households in the non-affected group
Baseline scenario	3.6%	2.9%
-10%	0.5	0.7
-20%	1.2	1.7
-40%	3.5	-

(%p)

- Considering that liquidity risk is concentrated in the bottom income quintile, even a small subsidy can contribute significantly to mitigating the risk (Table 6).
 - On a 20% loss of income, a subsidy of 1 million won will reduce the share of at-risk households by 2%p (4.7% → 2.7%) while a subsidy of 3 million won will reduce it by 3.2%p (4.7% → 1.5%).
 - The share can be markedly reduced with just 1 million won as households who are able to escape liquidity risk with such a small amount are relatively concentrated in the lower bounds of the income quintile.

- A selective measure in which cash-based support is only granted to asset-poor households while others receive credit support is more effective in easing both the liquidity risk and fiscal burden than a blanket measure.
 - For instance, on a 20% loss of income, the adoption of a selective measure providing a cash subsidy of 1 million to vulnerable households and credit support to others reduces the share of at-risk households by 3.7%p (4.7% → 1%) while a blanket measure will reduce it by 2%p (4.7% → 2.7%).
 - This is because the share of at-risk households is low in the upper quintile but the absolute size of their deficit is relatively large, and as such, credit support is more effective in mitigating the risk than a small subsidy.
 - Indeed, providing credit support such as collateral loans to households with assets that can be used as collateral and cash subsidies to vulnerable households would be more effective in reducing not only the liquidity risk but also the fiscal burden.
 - If the income loss is 20%, the share of at-risk households will be 4.7% of all households, among which one third (1.6%) will be vulnerable households in need of direct cash support.
 - However, although a selective approach can help ease the government's fiscal burden, the debt burden of some households may increase.
 - Credit support for households with assets may increase their debt in the short-term, but the debt can be resolved by an increase in income or asset restructuring in the mid- to long-term.

<Table 6> Changes in the Share of Households at Liquidity Risk by Support Measure

(%)

Scenario	No government support	Support measure				
		'Income subsidy' only		'Income subsidy' & 'credit support'		
		1 mil. won to all households at liquidity risk	3 mil. won to all households at liquidity risk	Credit support equal to annual income for households without liquid assets (collateral)		Share of at-risk households who receive cash-based support
1 mil. won to vulnerable households	3 mil. won to vulnerable households					
Baseline scenario	3.1	2	1.3	0.8	0.6	26
Homogeneous 1 (-10%)	3.7	2.4	1.4	0.9	0.6	28
Homogeneous 2 (-20%)	4.7	2.7	1.5	1	0.7	33
Heterogeneous 1 (-20%, 0%)	3.3	2.2	1.4	0.9	0.6	28
Heterogeneous 2 (-40%, -10%)	4.3	2.7	1.6	1.1	0.7	32

Note: The selective measure provides credit support (loan, etc.) equalling the annual income of households who have liquid assets that can be held as collateral (collateral loan/non-liquidable assets<80%) but whose non-liquid assets (=non-liquid assets-pertinent collateral loan) exceed their annual income, and cash support to the others.

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Summary and Policy Implications

- If the COVID-19 crisis ramps up household deficit, households lacking in liquid assets could face dire financial straits.
- The share of households at liquidity risk will escalate as the loss of income becomes sharper and the number of households exposed to the shock increases.
- The liquidity risk stemming from the COVID-19 crisis is more pronounced within the economically vulnerable group in terms of income and net assets, and among temporary and daily workers.
 - Meanwhile, the share of at-risk households by the industry in which the head is engaged is relatively high among the group of households headed by workers of industries that have been considerably affected by the crisis.
- Households that are at liquidity risk are particularly concentrated in the low income quintile, and thus, even a small amount of short-term income support could greatly reduce their liquidity risk.
- Support that is aimed at alleviating the liquidity risk to households is more effective when subsidies—cash or credit—are granted based on income level and net assets.
 - Cash support should be maintained for vulnerable households while those with assets that can be held as collateral are given credit including loans.
 - Although providing credit support, albeit limited, to asset-owning households could increase their debt in the short-term, it will contribute to alleviating the government's fiscal burden.

- In order to actually implement selective support measures as a response to liquidity risk, additional factors such as the parameters and secondary effects must be taken into consideration.
 - Infrastructure is needed for information on household income, expenses and assets, among others, to enable assessments of the degree of liquidity risk and ownership of assets.
 - A fairness issue could arise between the recipients and non-recipients of the subsidy, meaning further discussions may be required to build social consensus.
 - In addition, the purpose of providing support is not only to mitigate liquidity risk, but also to stimulate domestic demand and welfare. Thus, a more comprehensive understanding and judgement will be needed.

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