



Securities and
Exchange
Commission
PHILIPPINES

FINANCIAL STABILITY REPORT

2ND SEMESTER 2021



FINANCIAL STABILITY COORDINATION COUNCIL



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December 2021

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LIST OF ACRONYMS, ABBREVIATIONS and SYMBOLS

AEs	-	Advanced Economies
AFC	-	Asian Financial Crisis
AIG	-	American International Group
ALM	-	Asset and Liability Management
ASEAN	-	Association of Southeast Asian Nations
BIS	-	Bank for International Settlements
BSP	-	Bangko Sentral ng Pilipinas
CAR	-	Capital Adequacy Ratio
CBDC	-	Central Bank Digital Currency
CH	-	China
COP	-	UN Climate Change Conference of the Parties
COVID-19	-	Coronavirus disease
DOE	-	Department of Energy
DOH	-	Department of Health
DOLE	-	Department of Labor and Employment
ECB	-	European Central Bank
EMDEs	-	Emerging Markets and Developing Economies
EMs	-	Emerging Markets
ESG	-	Environmental, Social and Governance
ESRB	-	European Systemic Risk Board
EU	-	European Union
EUR	-	Eurosystem
FCY	-	Foreign Currency
FSB	-	Financial Stability Board
FSCC	-	Financial Stability Coordination Council
FSR	-	Financial Stability Report
GDP	-	Gross Domestic Product
GFC	-	Global Financial Crisis
GFI	-	Global Freight Index
GHG	-	Greenhouse Gas
GVCs	-	Global Value Chains
IBL	-	Interbank Loans
IC	-	Insurance Commission
ICT	-	Information and Communications Technology
IMF	-	International Monetary Fund
InsCos	-	Insurance Companies
IPA	-	Innovations for Poverty Action
ISL	-	Institute of Shipping Economics and Logistics
LCR	-	Liquidity Coverage Ratio
LCY	-	Local Currency
LHS	-	Left Hand Side
MaPST	-	Macroprudential Stress Test
MAV	-	Moving Average
MTOE	-	Mega Tonnes of Oil Equivalent
NBFI	-	Non-bank Financial Institution
NDC	-	Nationally Determined Contribution

NFCs	-	Non-financial Corporations
OECD	-	Organisation for Economic Co-operation and Development
OSRM	-	Office of Systemic Risk Management
PBS	-	Philippine Banking System
PCIF	-	Philippine Catastrophe Insurance Facility
PH	-	Philippines
PHP	-	Philippine Peso
PSA	-	Philippine Statistics Authority
QR	-	Quick Response
RHS	-	Right Hand Side
RITM	-	Research Institute for Tropical Medicine
RRP	-	Reverse Repurchase
RWI	-	Leibniz-Institut für Wirtschaftsforschung
SRCM	-	Systemic Risk Crisis Management
SWS	-	Social Weather Stations
TLP	-	Total Loan Portfolio
UK	-	United Kingdom
UN	-	United Nations
US Fed	-	United States Federal Reserve
US	-	United States
USD	-	US Dollar
VOC	-	Variant of Concern
WHO	-	World Health Organization
YoY	-	Year-on-year
YTD	-	Year-to-date

MESSAGE FROM THE FSCC CHAIRMAN AND BSP GOVERNOR



MESSAGE FROM THE FSCC CHAIRMAN and BSP GOVERNOR

The story of 2021 is one of economic recovery, with strong growth in the second and third quarters. At this pace, we now expect to finish the year at the higher end of the GDP forecasts. There continues to be ample liquidity in the financial system, and the unemployment rate is down to 7.4 percent from as high as 17.7 percent as the pandemic was unfolding in 2020. Although inflation remains above our policy range, we fully expect this to be below 4 percent in the months ahead.

There is momentum towards recovery and the immediate task is to build on the gains of 2021 and face 2022 on an even stronger footing.

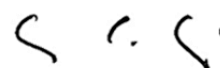
We do this by heeding the lessons of the pandemic. As I have said before, the interlinkages that have propelled our economy forward in normal times are the same interlinkages that can instigate systemic risks when stress conditions arise. This is exactly what this pandemic is about, a systemic risk that has arisen from the ability of the COVID-19 virus to spread, literally among individuals and figuratively across business activities. The point then is to be prepared and take a pre-emptive stance on possible risks.

This means not just addressing the damages that have been caused by COVID-19 but more so the follow through risks that these dislocations may be silently imposing on our recovery path. Just as our previous FSR talked about specific economic activities that will see fundamental changes because of COVID-19, we take the opportunity in this FSR to focus on policy issues that need to be addressed to preserve the gains that we have achieved thus far.

The Council remains focused on managing systemic risks now and into the future. This is, after all, our commitment to the Filipino people. That is, managing systemic risks ensures a resilient and well-functioning financial system whose benefits accrue to the public.

We trust that this FSR can spur an active discussion among stakeholders. This will surface the critical issues and allow us to collectively seek the best way forward. Just as systemic risks always affect everyone, full recovery and a more resilient financial system is a benefit shared by all stakeholders.

We wish everyone's good health and safety as we share this 2nd Semester 2021 FSR.



BENJAMIN E. DIOKNO

FSCC Chairman and BSP Governor

EXECUTIVE SUMMARY

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The recovery from the sharp contraction of the economy in 2020 is underway in 2021. GDP growth over the second and third quarters reflect the momentum, albeit still from an income base below that of 2019. That economic activity expanded despite periods of lockdowns reflects resilience and the Christmas season festivities would indicate a continued upward trajectory. As a result, the government now feels optimistic that the full year growth will be at the upper end of the forecasts, providing further momentum to 2022.

A rebound in the global economy has pushed forward the discussion towards exit strategies. COVID-19 remains an issue in many respects i.e., the surge in November in many jurisdictions and the subsequent discovery of the Omicron variant. But international agencies have indeed surfaced the issue of what it takes to exit from the current accommodative policy environment and the spillover risks that such relief conditions may have nurtured moving forward.

This FSR contributes to this discussion by revisiting what lessons have we learned from COVID-19. Unlike other assessments that focus on specific market changes over the past 21 months, we discuss some of the key points about the market itself. Liquidity will always be the frontline issue, but more than the amount is its distribution. This distribution will help define the impact on the market of the relief and conversely help outline the way forward. We talk of how COVID-19 highlights that the financial market is much more than just banks and why addressing the systemic risks will always require understanding the specific local context.

We likewise extend on our previous release. While the 1st Semester 2021 FSR talked of economic activities where COVID-19 plays a transformative role, this edition identifies four issues that must be addressed to sustain our recovery. The public health infrastructure is, arguably, still the foremost issue. We suggest a 3-pillar approach. We likewise talk of the current supply bottlenecks but tackle this from a broader perspective of GVCs and the corresponding cross-border payments infrastructure. Freeing up the bottleneck may require a broader rethink where both demand-supply conditions have been altered by COVID-19.

Social inequity has been discussed at several opportunities and we provide a glimpse of what the numbers look like in the Philippines, despite social indicators perennially difficult to acquire. We reconcile this, for example, with the finding that bank deposits actually rose despite COVID-19. We close Chapter 2 by revisiting the climate change issue. The twist here is that we use the lens of its impact on the energy industry and the recent COP26 meeting provides an up-to-date view of the issues.

We close this FSR by going back to one constant challenge: the availability of data specifically to assess systemic risks that are not yet evident. We consider where the data gaps are and comment on the big data phenomenon. From there, we round off the discussion by highlighting where the risks are as we move forward.

The point then is that we have gained by introducing policy interventions and we can only build upon those gains by taking calibrated steps against brewing systemic risks. There will be speed bumps in 2022 and we should not allow these to curtail our commitment to move forward.



WHAT COVID-19 HAS HIGHLIGHTED ABOUT SYSTEMIC RISK



WHAT COVID-19 HAS HIGHLIGHTED ABOUT SYSTEMIC RISK

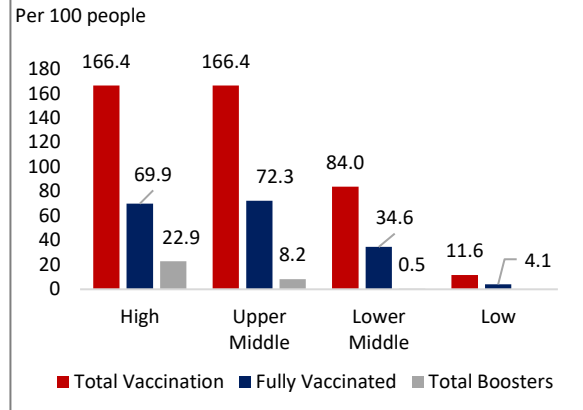
As the pandemic nears the end of its second calendar year, the urge to define the “lessons learned” from COVID-19 has increased. This is both useful and dangerous. Since COVID-19 is a pandemic with dislocations throughout the world, there will be a great use in determining similarities in impact and responses across different jurisdictions. Lessons, even preliminary ones, can offer some insight about this unusual crisis. Yet, there is also that universal acknowledgement that this crisis has yet to run its full course. This may leave some conclusion as possibly premature.

What is undeniable though is that market conditions remain very fluid. The distribution of vaccines remains highly uneven (Figure 1.1). There is also some level of hesitancy towards vaccination, aided in part by breakthrough cases. In the financial market, equity indices benefitted from the accommodative conditions. The yield curve has flattened despite the market chatter that the US would ease on its market support.

This does not suggest that the experience has been the same across jurisdictions. While “scars” became the tag line for the effects of COVID-19, “divergence” is the signature of the recovery efforts. Not only is COVID-19 widening the gap across groups within an economy (Figure 1.2), the prospects of the AEs are markedly divergent from those in EMs. And, as market conditions unfold, growth estimates are subjected to rather large revisions (IMF, 2021).

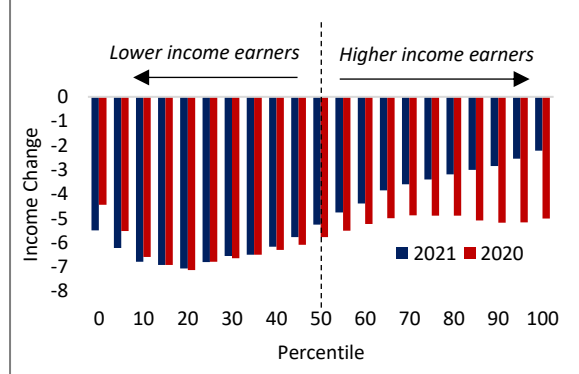
Still, a “look back” will be a good segue for “what lies ahead.” This is not meant to forecast. Rather, it recognizes that COVID-19 has created a discontinuity (Figure 1.3). The market expectations of the future that anchored pre-COVID-19 decisions are no longer viable because of COVID-19. Therefore, markets are

Figure 1.1: Global Vaccination per Country Income Group



Source: Our World in Data as of Dec 30, 2021

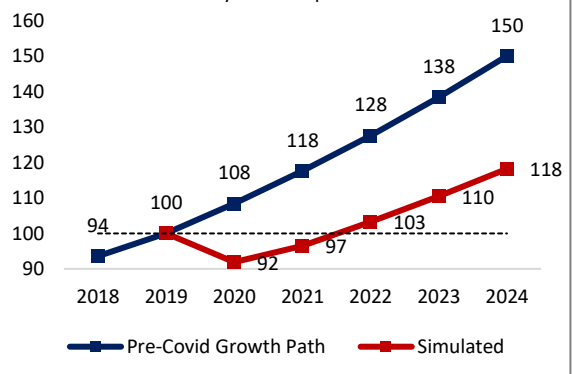
Figure 1.2: Global Income Loss per Income Percentile due to COVID-19



Source: World Bank

Figure 1.3: PH GDP Path

Break-even and Recovery to Recoup Losses



Source: OSRM Calculation

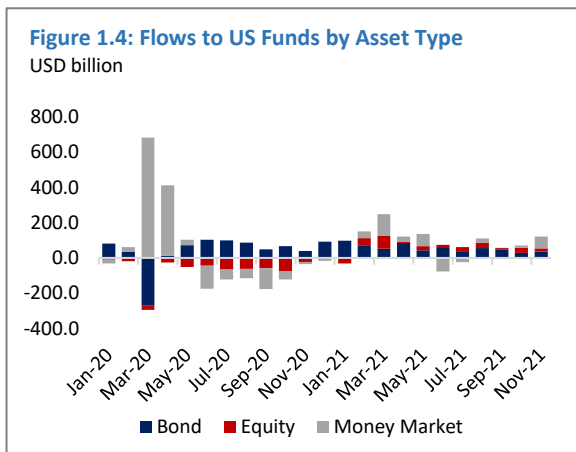
looking for a new anchor based on information that they can vet. Among others, this requires effective communication to properly advise stakeholders, against which they can make informed choices.

We have suggested in previous FSRs (2020a, 2020b) that the only way forward is to think backwards. By this we mean that we must define the market landscape that will prevail in the future. This serves as the anchor and from there stakeholders can plan what they should be doing recursively in previous periods (up to today).

In effect, we position this “look back” to define those features that need to be embedded in our thinking of the future. This is in the specific context of the longer-term effects of the pandemic, the implications on managing systemic risks, and how these play a role in “what lies ahead.” On this point, five issues stand out.

1.1. COVID-19’s lesson #1: It is about market liquidity

No doubt was left that COVID-19 would be a systemic risk when the WHO declared a pandemic and the IMF marked the world in recession. While the problem has been a public health issue, financial markets have not been immune to its effects. The so-called “dash for cash” episode in March 2020 (**Figure 1.4**) reflected a global sell-off of financial assets and the subsequent migration to the safest asset, cash, specifically the USD.



Source: Refinitiv

For the authorities, lesson #1 states the obvious: financial market activity is dependent on market liquidity. When the distribution of that liquidity stalls, the financial market stalls as well.

Arguably then, the immediate reaction of financial authorities to inject liquidity into the system is an important – if not the primary – reason why the financial system has weathered the pandemic well (FSB, 2021; ESRB, 2021). While the early prognosis was a disruption near to what was seen during the Great Depression, the current loss estimated at USD15 trillion (IMF, 2021) is relatively modest.

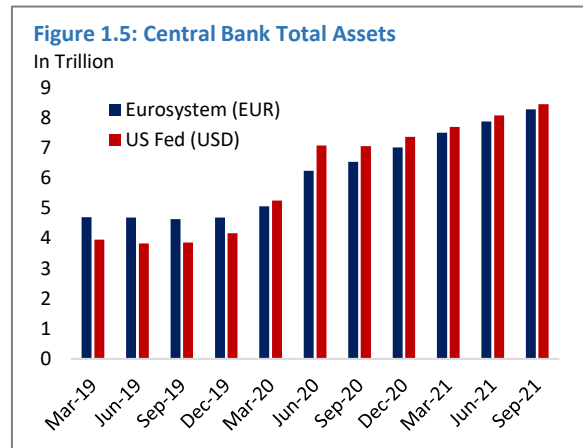
Yet, one must see beyond the coincident demand for market liquidity when conditions are stressed. In normal times, liquidity propels the funding markets. Banks can only create new loans if they are able to generate new deposits.¹ In the securities market, new issuance is viable only if there is liquidity that can absorb these securities. Whether through loans or securities, then, the ability of the private sector to expand beyond their own capital depends on market liquidity.

¹ Maturing loans can fund new loans but this simply replenishes the credit books rather than expanding it.

In mature financial markets, trading on margins allows portfolios to expand, literally by leveraging on liquidity. For as long as the perception of liquidity is sustained, markets will allow this multiplier effect. The limit is effectively set only by the maintenance margin.

Lesson #1 can then be refined slightly to emphasize that market liquidity can choke or nurture the financial market. On a going concern basis, funding liquidity is the foundation of leverage which can translate into economic activity. But when stress is introduced, liquidity can quickly dry up and a dash for cash can disrupt markets. The US has a deep and liquid fixed income market and yet the US Fed still had to step in to mitigate the dash for cash, using interventions of GFC vintage and introducing new² ones as well.

Since market liquidity is the cornerstone of a functioning financial market, it is “too important to fail” in this regard. The upshot of this is that the unconventional can quickly become the norm. While there were concerns over “monetizing the debt” when the authorities acted early on, this crisis quickly took a “whatever it takes” mantra, at least until we find a way out (**Figure 1.5**).



Source: ECB, US Fed

1.2. COVID-19's lesson #2: The flipside of market liquidity is risk aversion

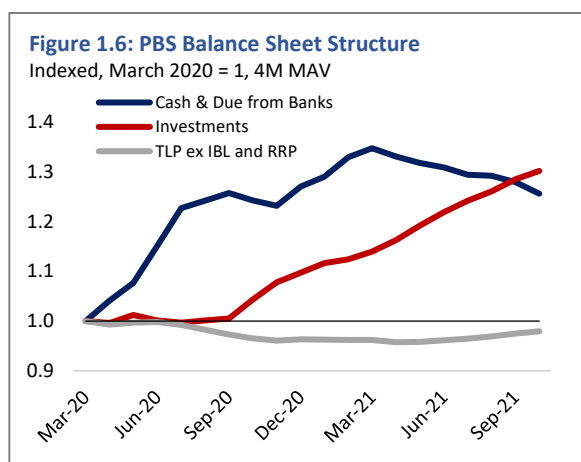
More liquidity though can create its own challenges. The injection of liquidity is an adrenaline to the system to counter the slowdown brought about by the crisis. But there is always that concern that too much liquidity will fuel inflation, and that high inflation can be persistent rather than transitory. This is the debate that we hear more in AEs. It reflects the balancing act between the benefits today of add-on liquidity versus the risks tomorrow of retaining too much of it.

Meanwhile, the dash for cash in March 2020 is ripe for a fallacy of composition. What may be best for each player often proves to be adverse for the whole system. This is the magnifying power of the herd. In this case, each member is protecting itself, but this is contributing to the financial market stalling.

It was also the epitome of a “risk-off”³ stance. Market players always prefer to be more liquid in times of stress. Unfortunately, this means that the

² The US Fed introduced the following facilities to support credit to employers, consumers, businesses, as well as nonprofit organizations: Corporate Credit Facilities namely, Primary Market Corporate Credit Facility (PMCCF) and Secondary Market Corporate Credit Facility (SMCCF); Term Asset-Backed Securities Loan Facility (TALF); Municipal Liquidity Facility, Paycheck Protection Program Liquidity Facility (PPPLF); and Main Street Lending Program (MSLP)

³ The sentiment among financial market players to take a conservative view by reducing their risk exposures.



Source: BSP, OSRM Calculation

workings of the financial market is much more than an amount of liquidity. It is the redistribution of liquidity which creates value to would-be borrowers. And this, in turn, is a matter of risk perception.

For banks, the injection of liquidity was an opportunity to strengthen a defensive stance against risks. We can see this in the banking portfolio rebalancing towards cash and portfolio investments at some expense of leverage (**Figure 1.6**). This is material for two reasons.

First, regulators can inject liquidity that will dissipate the fear of scarcity, but it must still be the financial institutions which must redeploy this to the real economy. COVID-19's debilitating effect on the financial market is that it creates a hole in the balance sheets of business entities. Suspended economic activities and broken supply chains impaired incomes that were expected to match against specifically timed payables. COVID-19 shifted the balance of risks, and financial institutions must strike a balance between what is best for their private portfolio versus what would be socially useful for the network of business entities.

Table 1.1: ASEAN Banking Liquidity and Capital Ratios

Country	LCR			CAR		
	Mar-20	Latest	Diff.	Mar-20	Latest	Diff.
ID	209.2	259.3 ^a	50.1	21.7	25.2 ^d	3.5
MY	141.4	153.3 ^b	11.9	18.0	18.0 ^b	0.0
PH	177.4	197.5 ^c	20.1	15.8	17.6 ^a	1.7
TH	185.7	195.3 ^b	9.6	18.7	20.0 ^b	1.3
SG*	143.0	140.0 ^d	-3.0	16.8	17.2 ^d	0.4

Source: National Central Banks, CEIC

^a As of June 2021

^b As of October 21

^c As of August 2021

^d As of September 2021

* Average of local banking group LCR

Second, the rebalancing would also suggest that mainstream metrics need to be assessed with the same shift in the balance of risks. One would expect that the liquidity ratio (i.e., LCR) of banks would rise as banks buy into more government securities. The resulting CAR would also be higher. Yet, both of these may be more indicative of a perception of risk rather than of absolute health, more so if leverage has decreased (**Table 1.1**).

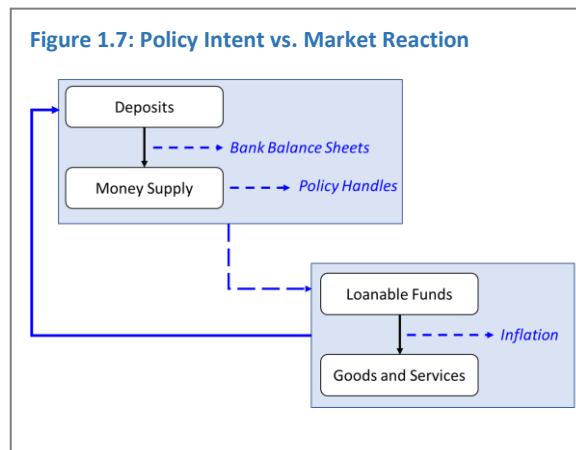
The FSB report also finds evidence that banks may not have been fully willing to use the Basel 3-related buffers available on their balance sheet. This is consistent with the view that banks are taking a defensive stance in assessing the evolving market stress conditions.

Lesson #2 then is that financial markets will always respond to shifting risks. Market liquidity provides a needed lifeline but how it is redeployed matters more. This follows our point in lesson #1 that it is the distribution of liquidity that drives market activity.

At the heart of all of these is how market players perceive the risks. This is the "pulse" of market players that may not always align with the policy intention from the authorities. The authorities, for example, may adjust bank reserve requirements to increase or decrease high-powered money,

“Market liquidity provides a needed lifeline, but how it is redeployed matters more.”

but the extent to which this change translates to the loan market will still be dependent on the risk decisions made by the banks (**Figure 1.7**).



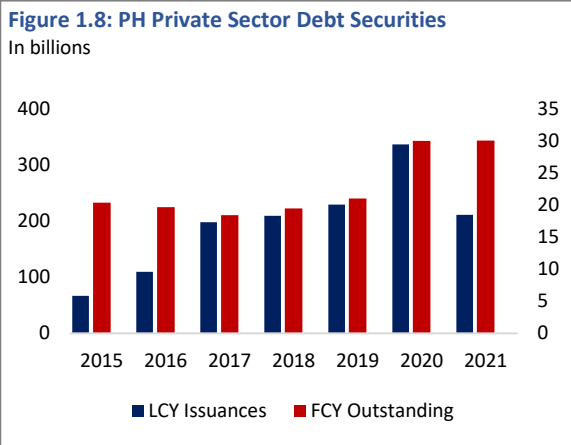
Source: Ravallo (2010)

1.3. COVID-19's lesson #3: Market resilience requires different components coming together

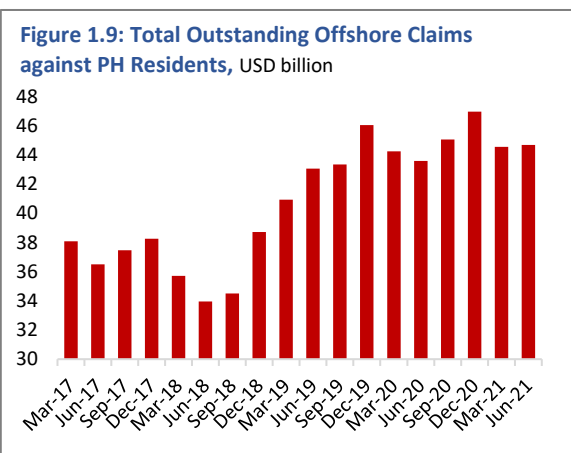
Fortunately, funding markets are not unidimensional. At least on paper, this should provide savers and borrowers with some options, allowing different market elements to complement one another.

Borrowers in the loan market would benefit from lower interest rates as regulators pushed benchmark rates lower. In most cases, this is what has been documented. But this is also where risk perceptions matter. There is the obvious question of whether the loan can be repaid in the future given the damage on economic activity created by COVID-19 (credit risk). But since banks act as intermediaries between the depositors from whom they sourced their funds and those with whom they provide a loan, there is also that need to be able to always service the needs of depositors (liquidity risk). In times of stress, liquidity needs are more likely to rise and credit quality is expected to fall. As a result, banks may be hesitant to create new loans if they are concerned with ALM risk mismatches.

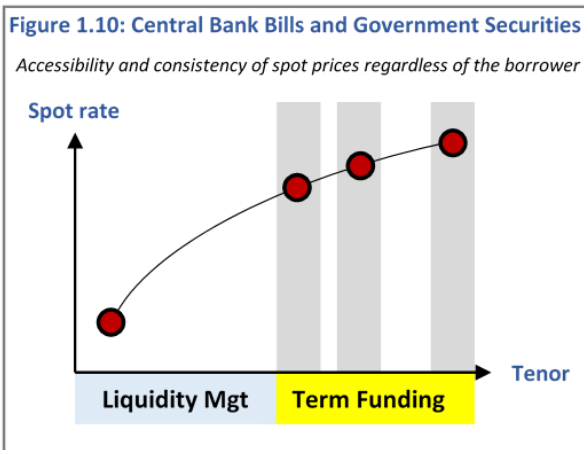
For the securities market, however, the lower-for-longer interest rate environment is a uniquely positive opportunity for issuers. Most securities in this part of the world are fixed rate obligations over tenors that are typically longer than bank loans. Investors still face a credit risk with the issuers of securities but arrangers directly price-in this risk into the bond yield. Since issuers directly offer in the primary market, there is no



Source: PDS Group, BIS



Source: BIS



Source: BSP, OSRM

intermediary that must also manage their liquidity risk in the process.

It is not surprising then to find a noticeable expansion in the securities market during this time of market turbulence (**Figure 1.8**). This is a welcome development because it provides an avenue for entities to raise funds vis-à-vis the loan market where risk aversion may be more a binding constraint.

The caveat is that financial markets are historically built around banks and only later broaden their securities market. The euphemism that has come into general use is that the corporate bond market acts as a “spare tire” to the loan market. In an ideal world, however, one should have both the loan and securities markets in place because they manage risks differently and provide different options to savers/investors and to borrowers/issuers.

COVID-19 has highlighted how fungible funding truly is, available through either loans or securities, and accessible either onshore or offshore. As shown in **Figure 1.9**, offshore claims on Philippine entities have increased during the pandemic. This increase is particularly significant when taken in light of outstanding bank loans which have fallen from its March 2020 level (i.e., when the pandemic was officially declared).

On paper, this appears to be a substitution from local market intermediation to offshore funding. Yet, there are jurisdictions where market-based financing may not be as broadly available. This is not just a question of the amount of finance made available.

Rather, it is ultimately about some risks being better handled by different market components, providing different stakeholders with varied options for managing risks.

Market-based finance should really be more than a spare tire. But the point cannot and does not end here. There is the matter of liquidity that needs to be priced consistently across funding markets. A viable yield curve enables the appropriate pricing of risks over time. In the same way, the pricing of central bank liquidity tools matter because they represent the cost at the shortest possible tenor (**Figure 1.10**).

“**Market-based finance should really be more than a spare tire.**”

Both short-term and longer-term liquidity matter to the funding market so that banks can price the risks attendant to their loans (given their ALM and credit risks) and issuers position their debt against yields (credit risk over time). If the pricing of risks does not get fully reflected in the funding markets, the outcome will likely tilt towards liquidity at the expense of leverage. This will also affect the contingent market on the investment side.

Lesson #3 then is that different financial market components must come together to redirect savings into funding and pricing risks in between. Resilience comes from having options and risk pricing would be more difficult to keep aligned in the absence of well-functioning different components.

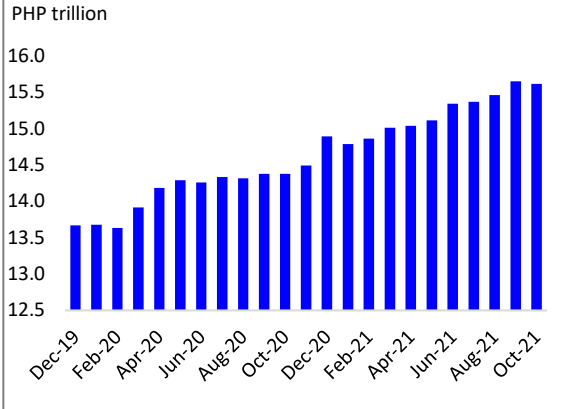
1.4. COVID-19’s lesson #4: Systemic risks need macroprudential policy

Financial authorities have to address market liquidity, risk aversion, and financial market resilience because COVID-19 is a systemic risk. The fact that COVID-19 started as a public health issue does not make it less of a systemic risk.

Systemic risks matter but there is much that is unclear about it. They matter because the effects are not limited to targeted constituents but eventually affect the rest of the economy. They matter regardless of whether the risks originate from the financial market or the real economy. And they matter because the dislocations feed off each other. The large effects that we typically associate with systemic-ness are the result of these cascading effects where small (even private) shocks can get passed on, magnified and eventually become a problem to all. They matter because there will always be a next occurrence, and we need to prepare for them, ideally, before these systemic risks come to fruition. Network models lend themselves well when thinking about this cascading effect. For COVID-19, we can have asymptomatic super spreaders who can cause adverse impacts on extended communities without even knowing it.

Yet, we must also recognize that the damage COVID-19 is causing did not come from a failed financial institution or due to the economy overheating. Despite the sharp economic contractions, bank deposits generally continue to rise, even though the suspension of economic activity has been uniquely difficult for particular job categories (**Figure 1.11**).

Figure 1.11: PBS Deposit Liabilities



Source: BSP, OSRM Calculation

What these say is that there are multiple dimensions to the COVID-19-induced systemic risks. The public health issues are self-evident. The socio-economic gaps in incomes, opportunities, and saving are most likely to have widened across cohorts. These affect financial markets even though the problems are not within the strict context of microregulatory issues or monetary policy.

If systemic risks cause a different set of issues, the practical question then to the authorities is how to manage them and nurture the market back to health? What do the first three lessons tell us?

As a concept, this should be the realm of macroprudential policy, a term that dates to the late 1970s with the Cooke Commission.⁴ To further explain macroprudential policy, Crockett (2000) depicted the financial system as a portfolio of securities. Anyone familiar with portfolio theory already knows the punchline. That is, mitigating the individual risks would not be enough to understand, let alone manage, portfolio risks.

(Systemic risks) matter because there will always be a next occurrence, and we need to prepare for them, ideally, before these systemic risks come to fruition.

The point then is that we have to treat the COVID-19-induced systemic risks by following its interlinkages within the system. We know where it did not come from and we know that we cannot sidestep the public health issue (see Chapter 2). But risks that materialize beget new risks. With the economy contracting in 2020 by 16.5 percent versus pre-COVID-19 trend, one must expect the damage to eventually loop back to the financial market and this puts pressure on current and future states of the economy.

Our previous FSR (2021) laid out some of the key interventions to consider. Relative to the lessons above, we need to rebalance the flow of available liquidity. This is a risk aversion issue that may be linked to the pricing of risks, both across financial market components and into an

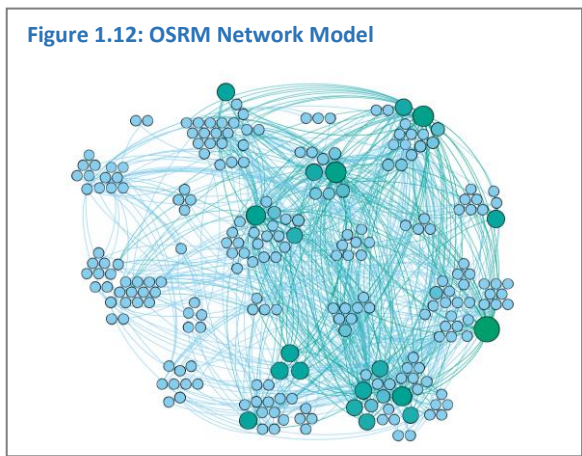
⁴ The Cooke Committee (the precursor of the Basel Committee on Banking Supervision) coined the term “macroprudential” in 1979 when it observed how microprudential concerns (its mandate) had macroeconomic implications (which were beyond its mandate). After the GFC, a joint paper by the FSB, IMF, and the BIS defined “systemic risks” as necessarily adversely affecting the broader economy. Today, managing systemic risk is the context of “macroprudential policy.”

uncertain future. The latter will always be an issue given fluid market conditions and must be addressed directly.

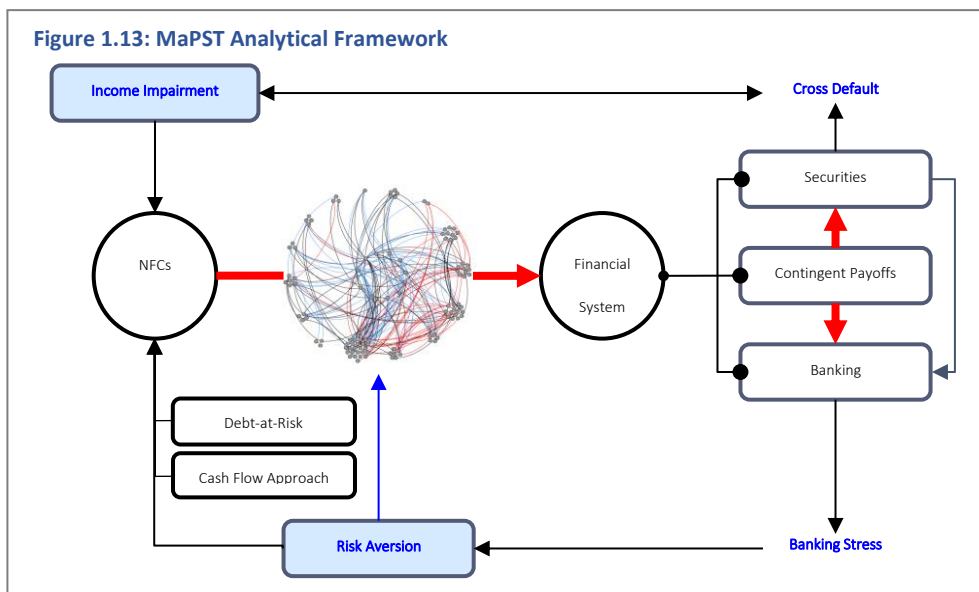
We also understand that COVID-19 caught many jurisdictions unprepared to deal with the epidemiological issues. However, it has been argued that COVID-19 is not a “black swan” event as there were jurisdictions at various stages of epidemiological preparedness. The point is that those adverse effects that we could not even imagine will always be a shock but not all shocks need to be a total surprise. Earthquake drills may be boring to many, but it has value when the actions are no longer a drill. Preparedness then matters as part of resilience because we do not want to respond to fast-evolving developments without the benefit of a pre-defined framework in place.

Lesson #4 is that systemic risks matter because of the underlying pass on effects and we need to be ready for its occurrence. For future epidemiological and biological infections, this means taking a proactive initiative to pre-test and monitor outbreaks, having a public health infrastructure that has the capacity to address the immediate needs of the public, the technical capability to manufacture vaccines as well as the logistical infrastructure to distribute them where and when needed.

For macro and financial markets, this requires knowing the network between firms, across industries, as well as their links with the rest of the world (**Figure 1.12**). This requires consistently updated data so that we can map out the extent of the linkages, and a periodic macroprudential stress test to assess developing vulnerabilities (**Figure 1.13**). We need better data

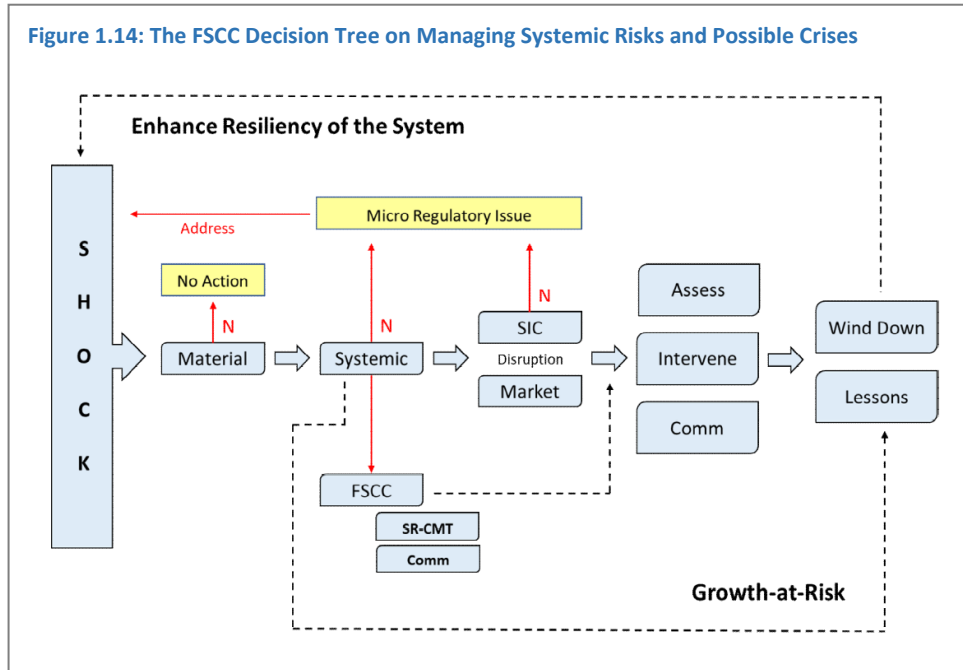


Source: OSRM Calculation using S&P Capital IQ data



Source: OSRM

so that the intensity of potential shocks can be pre-identified and regularly tested. And we need a framework for handling the intricacies of containment, recovery, and the underlying communication efforts (Figure 1.14).



Source: BSP, OSRM, Adopted from OECD Financial Crisis Management Framework (Singh and LaBrosse, 2012)

1.5. COVID-19’s lesson #5: Talking about the exit

All these lessons take us to the coveted topic of the day: plotting the recovery.

This discussion is grounded by the growth forecasts for 2021. Although there is this issue of divergence and spillovers between the AEs and EMDEs, some growth – no matter how nascent – will still be welcomed over a contraction. There is also the view that financial systems have thus far weathered the pandemic. For the most part, bank lending and securities issuances are on the rise, while many analysts have been surprised by the limited extent of corporate bankruptcies reported thus far.

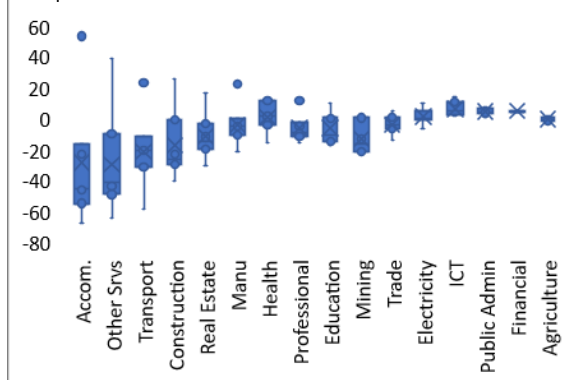
The challenge is that different jurisdictions are not mirror images of each other. There will be stark differences and the concern over divergent recovery paths only highlights this point. And these differences directly affect the path towards the exit ... and beyond.

If we take another look at the experience in 2020 and the prospects for 2021 across different economic groupings, we can highlight the differences within and across groups, as well as across time. **Figure 1.15** shows that contact-intensive sectors such as Accommodation & Food Service Activities, Other Services Sector and Transport registered wider

range of negative growth figures while sectors such as Agriculture, Finance and Public Administration were the least affected during the pandemic. These differences will be reflected in the corporate sector (through economic activity) and in households (through employment income).

These differences tell us that the exit must be measured against the hole created by COVID-19. The path forward cannot be the same for all because COVID-19 took out different jurisdictions differently from their pre-COVID-19 paths.

Figure 1.15: Quarterly Growth since Pandemic
YoY percent



Source: PSA, OSRM Calculation

This is lesson #5, that the lessons from COVID-19 and the path forward need an onshore context. Market liquidity is still absolutely essential (lesson #1) but how much of it is needed depends on what COVID-19 curtailed and how much of this liquidity can be redistributed under risk aversion (lesson #2). Socio-economic gaps will invariably widen because of COVID-19, but this will be because those who were already vulnerable in the first place are finding even tighter conditions (lesson #4). This is a policy concern by itself. But this will suggest though that overall savings has been less affected than what the GDP growth numbers imply. The latter brings up market-based financing as a critical way forward (lesson #3). This is because the availability of private savings, both onshore and offshore, can provide the liquidity that viable-but-temporarily-distressed corporate entities require.

The way forward cannot be framed only in the context of the financial market. The public health issues of COVID-19 still need to be addressed. Every league table that quantifies the recovery prospects across jurisdictions all have some measure of handling COVID-19, and rightly so. While handling COVID-19's myriad of health-related challenges is complicated – from capacity limitations to vaccines to communication – it is a mistake to think of COVID-19 as a black swan event. COVID-19 is a materialized systemic risk because of its contagion effects, and we need to think about these butterfly effects. Going by the world's experience with the Spanish influenza, this will take time before things are reasonably contained.

But we must also think of the income loss and risk aversion spawned by COVID-19. These fuses have been lit and will have follow through consequences in both the real economy and in the financial markets. The brunt of the damage is borne by NFCs and vulnerable households. We need both in better health to move the economy forward, and tangentially, because their condition will eventually be reflected in financial markets. No real estate bubble (1997 AFC) or a Lehman-AIG type (2007 GFC) cliff effects have been reported thus far, suggesting that “slow burn contagion” is the norm. The precise magnitudes and actual contagion effects will be a matter of local context. But it would not be wise to bet that COVID-19's damage has already been fully contained.

A large, bold, blue number '2' is positioned on the left side of the page. It is partially overlaid by a yellow semi-circle on the left edge. The number is set against a background of a network of blue dots and lines that forms a map of the world, with a higher density of nodes in the Americas and Europe.

RECOVERY AND RESILIENCE

RECOVERY AND RESILIENCE

COVID-19 remains at centerstage, but is arguably less threatening. Just as daily confirmed cases rose to over 20,000, it has since fallen to under a thousand a day as of finalizing this report. Market conditions are still prone to uncertainties, for example, with the emergence of the Omicron variant. Omicron is highly virulent, but the effects thus far have been much milder than the Delta variant. This in part is the nature of Omicron, but it also reflects the gains from the vaccination initiatives of the Government. Still, Omicron has the ability to be a burden on the health infrastructure. It is appropriate to be thinking ahead as we undergo a recovery.

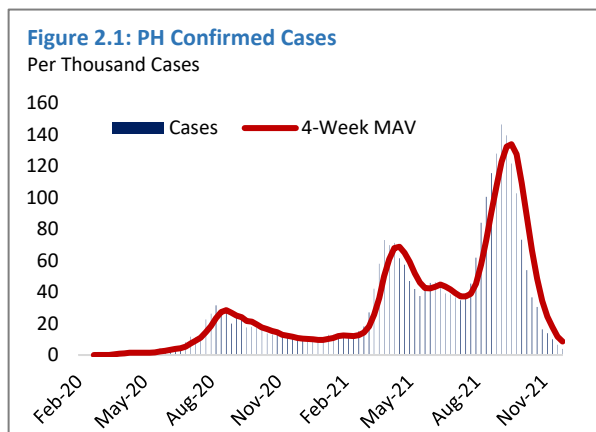
This recovery though will not materialize on its own. The point from the previous chapter is that COVID-19 impacted income and altered risk behaviors, both of which will take time to fully unfold. The authorities then need to consider the after-effects, not just because they influence future metrics of recovery but more so because they can create new vulnerabilities.

In this chapter, we look at four specific areas that we believe are key elements of our recovery path.

2.1. Public health infrastructure

Daily cases notwithstanding, the substance and timing of our full recovery will depend on our handling of the COVID-19 virus and any other similar future occurrences. The SARS-CoV-2 virus continues to be rampant but with varying conditions cross different jurisdictions. Even before Omicron (variant B.1.1.529) was labelled as a VOC in late November, the WHO was already reporting spikes in the US, UK, and in many parts of Europe, in contrast to the generally declining trend in South-East Asia and Eastern Mediterranean countries.

Daily cases in the Philippines are significantly down. The DOH daily tracker for COVID-19 cases shows a very sharp decline since late November (Figure 2.1). This is not to suggest that the Philippines has already “won” the battle. What it should highlight though is that we have some leeway to prepare for future occurrences. That is, rather than using up limited resources to “fighting fires” daily due to more infections, we have the opening to build further handling capacity.



Source: DOH

Preparing for the future: The Core Pillar. It would be ideal if we have an accurate count of the population, as well as their basic demographic details. Current population data tend to be projections while census data are typically dated. More real-time data is needed so we have a good sense of how many (typically distributed by age cohorts) need to be tested, regularly vaccinated, and where these individuals may be. As results come out, this information can also help in tracing those deemed to be close contacts.

It goes without saying that the enhanced focus on washing one's hands, avoiding contact with your eyes, nose and mouth, as well as the regular disinfection of surfaces should remain. These are not specific to COVID-19, but it has taken a pandemic to engrain these hygiene habits.

Daily temperature checks – particularly when entering public establishments and offices – remain a good idea as a minimum protocol. The use of face masks is expected to be regular practice for some time, even if it is an inconvenience. Due care remains about maintaining the quality of the masks.

Health declaration cards have become staple fixtures, together with temperature checks. While these are seen as entry-level screening, they could provide a wealth of information if taken collective as part of big data. This assumes that the declaration remains truthful so that any underlying trend can be mined, and linkages can be established. The same opportunity is available, in theory, when mall patrons are asked for their QR codes as they enter the premises. This facilitates contact tracing, as needed, but the same information can provide a profile of the population that frequents certain malls at certain times.

Physical distancing is arguably the most inconvenient among the suggested practices. It is contrary to normal social behavior and is thus prone to enforcement challenges. Office buildings pre-COVID-19 and public places like restaurants and shopping malls are designed to maximize physical capacity and foot traffic. This may no longer be aligned with the distancing guidelines. Already, one can easily see in public places that such distancing is difficult to enforce. This may be reflective of the fatigue that people have with being told to be apart or from the instinctive nature of individuals to socialize or even from the natural behavior to go about one's business without consciously thinking of physical distance from other people.

Such difficulty highlights that it is highly unlikely to be enforced while all the more impressing the need for the testing-vaccination-tracing-hygiene protocols.

Preparing for the future: The Pre-Requisite Pillar. While the core pillar presents the going concern, a lot needs to be invested in building capacity. This is necessary at two levels. First, continuous work on the emergence and handling of infectious diseases would be a pro-active step forward. Our

experience with COVID-19 provides a useful groundwork for highlighting the strengths of the RITM under the DOH and assessing the areas that could be enhanced.

Possibly contrary to the popular thinking, COVID-19 is not necessarily a “black swan” event. Taleb – who coined the term in his 2007 book – described the COVID-19 pandemic as preventable, a “white swan.” More than his issue with the regular misuse of the term “black swan,” one should not overlook the point that several jurisdictions such as the US and Singapore have institutions whose mandate is to research on and manage potential infectious diseases. This could be an area that the authorities may want to focus on moving forward.

Second, there must be hospital bed capacity for the surge in patients as the gravity of the situation escalates. The data points to an average of 76.8 beds per hospital (**Table 2.1**). This translates to about 972 hospital beds per one million individuals. On the whole, the sufficiency of which was put to a test by COVID-19, with periods where bed capacity, in general, was already at a critical level. And since there is also a very broad disparity in capacity – from a low of 388 beds to a high of over 2,100 beds per million in the population – there were specific locations where patients had to be treated in makeshift facilities or could not just yet be accommodated.

Table 2.1: Distribution of Hospital Beds in the Philippines

	Population (as of May 2020)	Government		Private		Total Hospitals	Total Sum of Bed Capacity	Beds per Million population
		Hospitals	Beds	Hospitals	Beds			
Bangsamoro Autonomous Region in Muslim Mindanao (BARMM)	4,404,288	22	1,527	9	185	31	1,712	388.7
Cordillera Administrative Region (CAR)	1,797,660	17	1,365	17	714	34	2,079	1,156.5
National Capital Region (NCR)	13,484,462	51	17,136	136	12,318	187	29,454	2,184.3
Region I (Ilocos Region)	5,301,139	34	2,299	46	2,038	80	4,337	818.1
Region II (Cagayan Valley)	3,685,744	27	2,323	45	1,916	72	4,239	1,150.1
Region III (Central Luzon)	12,422,172	54	4,673	140	5,521	194	10,194	820.6
Region IV-A (CALABARZON)	16,195,042	61	3,582	168	9,716	229	13,298	821.1
Region IV-B (MIMAROPA)	3,228,558	18	1,015	14	651	32	1,666	516.0
Region IX (Zamboanga Peninsula)	3,875,576	13	1,498	31	1,149	44	2,647	683.0
Region V (Bicol Region)	6,082,165	22	2,541	35	1,423	57	3,964	651.7
Region VI (Western Visayas)	7,954,723	35	3,127	30	3,394	65	6,521	819.8
Region VII (Central Visayas)	8,081,988	22	2,213	43	3,155	65	5,368	664.2
Region VIII (Eastern Visayas)	4,547,150	23	1,780	28	1,441	51	3,221	708.4
Region X (Northern Mindanao)	5,022,768	21	1,932	51	3,134	72	5,066	1,008.6
Region XI (Davao Region)	5,243,536	13	2,195	51	3,182	64	5,377	1,025.5
Region XII (SOCCSKSARGEN)	4,901,486	15	1,239	65	3,576	80	4,815	982.4
Region XIII (CARAGA)	2,804,788	12	1,255	11	748	23	2,003	714.1
Philippines	109,035,343	460	51,700	920	54,261	1,380	105,961	971.8
Average beds per hospital			112.4		59.0		76.8	

Source: PSA, National Health Facility Registry



...Taleb – who coined the term (“Black Swan”) in his 2007 book – described the COVID-19 pandemic as preventable, a “white swan...”



The challenge though is balancing the social benefit of medical facilities versus the private costs of building, and then maintaining these facilities. For the private sector, a deliberate strategy to maintain excess capacity in normal times would be tantamount to requiring a premium to be paid by non-crisis-time patients but borne equally by all patients during crisis periods.

Public hospitals can, in principle, better justify the spare capacity on the basis of social benefit. But not requiring public hospital patients to (frontally) bear the added cost merely hides the reality that this facility ultimately needs some funding support through the general appropriation. The added capacity effectively is a public good and with it comes the usual challenge of continuous funding.

How the cost of building and maintaining excess hospital care capacity should be borne requires further discussion among the stakeholders. This is not an easy issue to settle but it is one that must be dealt with if we accept the premise that we need more hospital care capacity as a buffer in case of surges. Perhaps future technology can provide a better answer to make this added capacity portable and scalable in ways that can also provide the benefit of increased affordability.

Preparing for the future: The Logistics Pillar. The nature of the virus – contagious, air-borne – indicates how quickly it can spread unnoticed. The suspension of travel (by land and by air) has been frequently resorted to, balancing the downside of lockdowns against the upside of curtailing the spread.

This approach though suggests that the authorities consider the logistics side of the issue. First, in an archipelago such as the Philippines, we need a way to redistribute the vaccines and testing kits that have been sourced. Storage is an issue for the vaccines as well as shelf life. Transportation arrangements are therefore critical but not trivial. This is particularly the case if the vaccines have to be stored for an extended period, suggesting that notional supply has outstripped real demand.

The information in the pre-requisite pillar is key because we must approach this like a triage, i.e., a prioritization with a timely response together with a validation of results so that, if warranted, the deployment of supply can be recalibrated.

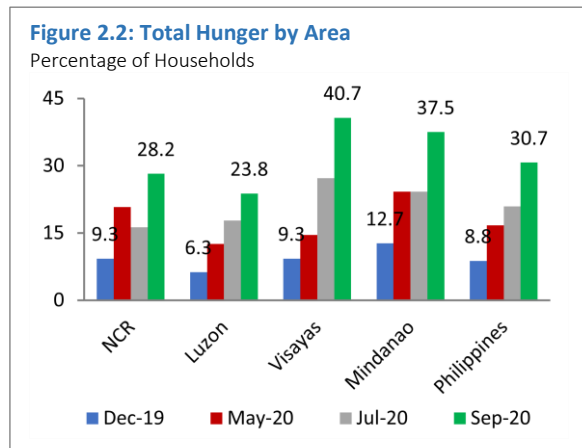
Second, the lockdowns show how access to basic goods and services at the community level is critical. While COVID-19 generates headlines, the battle is literally on the ground. There must be a way for food and services to be provided to local communities, while adhering to the expected core pillar arrangements. This is, unfortunately, quite a challenge when population density is naturally high in some locations. Prioritizing the elderly and more vulnerable appear to be a basic premise but the execution of the “queue” and the check-and-balance of who received the assistance remain a difficult task.

Access to goods and services certainly translates to the welfare of households and individuals. While official yearly poverty indicators are not available, publicly issued SWS surveys provide a picture of the dynamics on the ground.

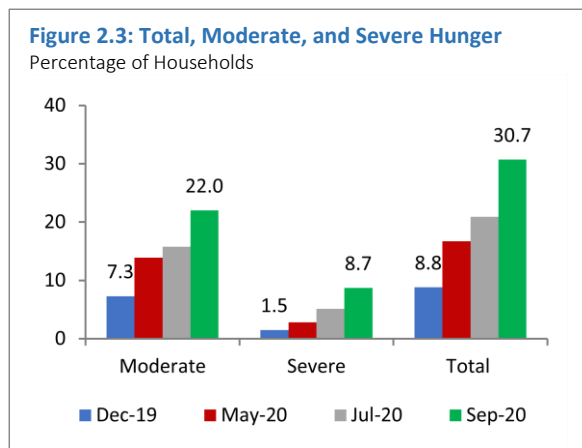
As of its December 2019 survey, SWS found that 8.8 percent of families experienced involuntary hunger, which it defines as hunger due to the lack of food to eat, at least once over the recent quarter. As COVID-19 took hold, this figure immediately rose to 16.7 percent in May, 20.9 percent in July, and peaked at 30.7 percent (about 7.6 million households) in September 2020 (**Figure 2.2**). A further breakdown shows a three-fold increase among those who are classified under moderate hunger but a six-fold increase among those who fall under severe hunger (**Figure 2.3**).

The situation is complicated further in some cases by informal settlers whose general presence is known to local authorities but whose demographic details (head count, age profile, medical conditions, mobility) are unvalidated. The social mandate of public health and personal welfare remain unchanged by their status as informal settlers. Yet, addressing this mandate will continue to be difficult if the authorities do not have a workable profile of who, where, how many, and in what conditions are the constituents.

Herd immunity may be less the issue. With COVID-19 variants developing quickly and some escalating into VOC-status, it is less clear today that natural immunity is determinable. This is not to say that the human body has lost its ability to adapt, adopt, and be more resilient. What we mean instead is that desired percentage to attain herd immunity may be much more difficult to establish.



Source: SWS



Source: SWS

Vaccines remain our best personal defense against medical complications. As many scientists have pointed out, it does not guarantee that a vaccinated person will not get infected. The rise in COVID-19 cases in jurisdictions where vaccination rates are high is reflective of the uncertainties.

There is also the timing problem. Vaccines have been prepared based on what we know of the COVID-19 strain. But as mutations occur, it is not automatic that the new variants can be addressed by the vaccine or even captured by current testing protocols. This is the more contentious issue, and we have heard the vaccine manufacturers issue statements about their expected success with Omicron.

Enhancing our public (and private) health infrastructure is necessary but it does come at a cost. The point of the above is that the existing capacity to handle surges in medical needs can stand improvements. This part of the equation is less debatable. Perhaps, the real challenge in all these is how the costs of these improvements will be funded and borne by stakeholders.

The pre-requisite pillar talked of increased hospital care capacity, consistent research, and the production of vaccines. These cannot be done without funding. The core pillar, on the other hand, is the going concern protocol. Tests, vaccines, the need for possible contact tracing, and the operation of the underlying big data behind all these come at a cost. And while production can be coordinated to better reach consumption, logistic arrangements are not without costs.

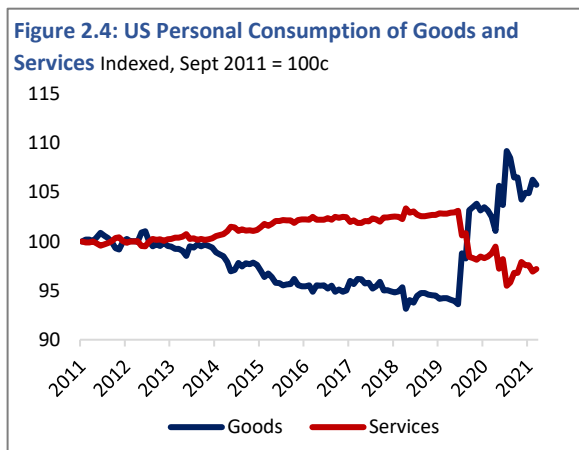
This may be the immediate challenge. Public health and social welfare are public goods which are needed if the recovery is to take deep roots. But, as with any public good, how the costs are to be borne is a difficult policy issue.

2.2. Supply chain bottlenecks and cross-border linkages

While multilateral agencies all confirm the recovery out of the recession, the persistent issue flagged in the popular media is supply bottlenecks and its effect on rising inflation. At the onset of the pandemic, consumer

purchases shifted away from services towards goods, especially in AEs, affecting supply chains. Figure 2.4 shows the consumption of goods and consumption of services in the US since 2011, and the shift in the demand for goods in 2020. This shift combined with the impact of COVID-19 on the availability of skilled labor all along the supply lines underlies the supply chain crisis.

The issue seems to be an enigma: if controlling COVID-19 needed economic activity to be suspended, including cross-border trade, why would



Source: FRED

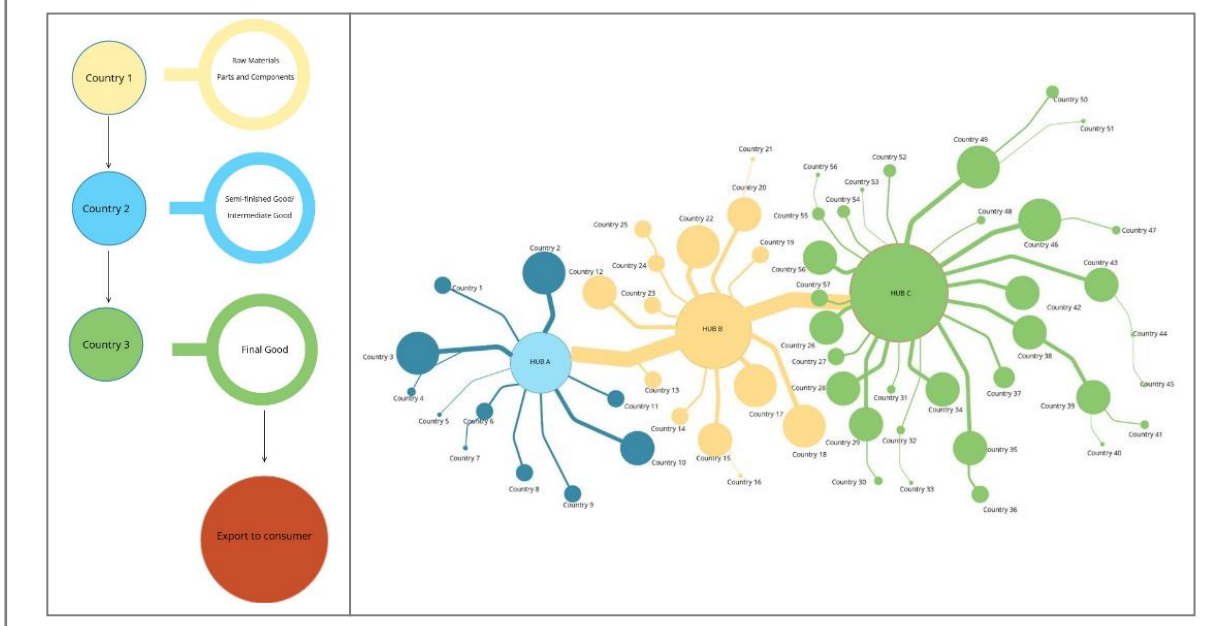
bottlenecks worsen when the global economy recovers? And, if this is a “re-adjustment” to changed market arrangements, wouldn’t this issue sort itself out soon enough?

Recognizing value chains in a more integrated global economy. The answer to these questions starts from an appreciation of what was happening before COVID-19 which COVID-19 itself subsequently altered.

The ascension of China as an economic power coincides with its aggressive repositioning in global trade. China’s moniker “factory to the world” describes its global position, but at the same time, it also arguably understates a bigger role. That is, China is not only central in many supply chains (i.e., the production of goods so that they can be sold at competitive prices) but has taken on the primary position in GVCs (i.e., the use of know-how across borders, from conceptualization to sourcing materials, to production, marketing, distribution, and end-consumer support to create added value to specific consumers).

This emergence of GVCs over recent decades epitomizes the increased integration of the global economy. But it does not simply represent a lengthening of the supply chain in a linear, single path. Instead, GVCs reflect a network that provides nonlinear, multiple paths, to create a value proposition (**Figure 2.5**). By design, GVCs are subjected to continuing reassessment and recalibration since each nonlinear segment is portable and scalable, tapping potentially more efficient providers who are at the “right” price.

Figure 2.5: Supply Chain vs. Global Value Chain

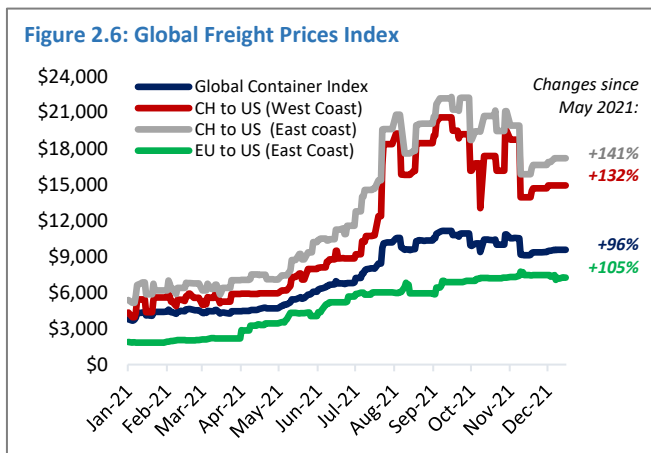


Source: BSP, OSRM illustration, modeled from the 2016 World Bank publication *Making Global Value Chains Work for Development and Jobs* et al. 2018.

COVID-19 came, and we now have a supply chain problem. The lockdowns highlighted the interconnected nature of global production and commerce. Yet, while supply chains themselves were disrupted as a result of the spread of COVID-19, it may be too limiting to see the problem as that of suspended production lines. If these lines were simply put on hold because of limited cross-border activity, why would there be supply bottlenecks today when the global economy is normalizing?

The production side has been affected by specific issues in the shipping industry. China, for example, passed its “Zero-Tolerance” Coronavirus Policy which resulted in the closing of Ningbo Port in August 2021. In

March 2021, the Suez Canal in Egypt was blocked for six days because a container ship ended up stuck diagonally after experiencing strong winds. Ports in both the US East Coast and West coast are congested, causing not just long delays but much higher freight costs. The Global Freight Index, for example, shows an increase from over USD2,000 to a high of USD10,000 from October 2020 to October 2021, with sharper uptrends in oil prices invariably contributing to the higher costs. Unsurprisingly, China was the highest contributor to the increase in global freight rates. Freight cost from China to the US reached a high of USD22,000 in September 2021 (**Figure 2.6**).



Source: Refinitiv/Freightos Baltic Index, OSRM Calculations

The issues are not limited to the delivery of end-products to end-consumers. There are indications of raw material shortages as well. This will further amplify the supply shocks because several downstream products would not be available without these upstream inputs. And the fact remains that the connection is not limited to one-raw-material-one-output and so we expect the multiplier effect of such shortages.

On the demand side, the uneven recovery from COVID-19 also has an effect. Since there are different paces of re-opening closed borders across various jurisdictions, there will be different demand pressures as well. The value chain, however, is meant to be a continuing end-to-end flow, losing its appeal if there are pockets of congestion at various segments. The divergent recovery experiences then can contribute to further bottlenecks as demand and supply are not in sync.

For instance, Chinese port activity drastically halted during the outbreak of COVID-19 due to lockdowns and restrictions. The ports outside China followed suit as the virus spread globally. With the quick containment of China of the virus they were able to scale back on restrictions and port activity had recovered immediately. However, the rest of the world struggled to contain the virus prolonging restrictions resulting in uneven recovery of port activities. The early recovery of China from COVID-19 is

indicated in **Figure 2.7**, as the immediate rise of the throughput index ahead of the corresponding index for the rest of the world. In some cases, such as the US, this can be magnified because the liquidity support from the government is being deployed as strong demand. Without supply on the other side, the result is often market rationing through higher inflation.

What COVID-19 tells us of networks. We argue that the current supply bottleneck issue – and its impact on prices – will not simply fade any time soon. This has implications on global inflation, the effect such will have on many jurisdictions, and it may have enough impact on sustaining recovery.

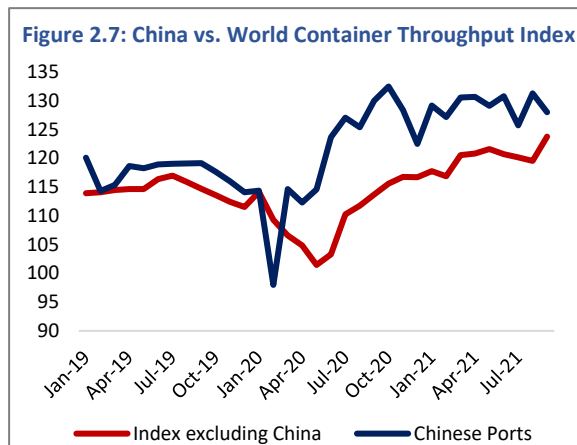
In our view, this is not a mechanical problem of supply needing a re-boot after nearly two years in sleep mode. Instead, there are deeper issues at play, principally that of the formulation of value chains.

While there is academic basis for the formulation of GVCs, COVID-19 has however exposed some of its vulnerabilities. At the very least, its formulation as a network rather than as a single production line is suggestive of its power to amplify gains, and losses. Unfortunately, COVID-19 highlights the latter, not because segments of the production process were curtailed but because the multifaceted market arrangements made the vulnerabilities evident simultaneously with add-on effects.

If the epicenter of the COVID-19 infection remained in China, the early recovery of China would have been expected to remedy the issue. Instead, the epicenter shifted throughout the world, making it difficult to re-start the value chain. Consistent with any network, the final impact though of the disruption caused by an epicenter would depend on the circumstances of the epicenter (i.e., state dependency) and who in the value chain are connected to it and in what sequence (path dependency, typically not linear).

The resulting imbalance between supply and demand forces would not be a simple timing issue because, in a value chain, each side feeds off each other. Supply deficiencies will adjust, but given its causes, will do so with a lag. In the meantime, demand may not always be this strong, adjusting to the tapering of fiscal support and the erosion of base effects. There may also be fundamental changes in demand preferences because of the experience from COVID-19. How one side's uptrend adjusts to the other's downtrend will be a process in a market where uncertainties still pervade.

This is the nature of the chain being rebalanced continuously to create the value experience to end-consumers. It has the ability to move, for example, an entire automobile assembly plant to a different jurisdiction even if the know-



Source: Institute of Shipping Economics and Logistics (ISL) and Leibniz-Institut für Wirtschaftsforschung (RWI)

“ At the very least, (GVCs) formulation as a network rather than as a single production line is suggestive of its power to amplify gains, and losses. ”

how needed to assemble the final output is not sourced onshore. This is done though under normal times when there are reasonable expectations of regularity. Whether the current situation necessitates another rebalancing of GVCs is a brewing issue at hand.

There is a payment side to these linkages. Thus far, we have talked only about the commodity side of the bottleneck. In reality, none of that global trade can be consummated without the corresponding cross-border financial infrastructure. An interesting area to look into is how the GVCs impact on financial markets, and how COVID-19 specifically has made a difference.

Shin (2019) argues that the nature of GVCs adds pressures on finance, beyond the irrevocable settlement of trade obligations. He characterized GVCs as finance-intensive because inventories and production need to be sustained, apart from financing the balance sheets themselves. This financing requirement increases as GVCs lengthen and become more complex.

COVID-19 complicates the financial requirements because of the need to repair the balance sheets of stressed borrowers. But with market conditions still dependent on the balance between vaccines and variants, the future path can still let debtors segregate between those that remain viable (but with needed help) versus those which become unviable. The latter may either be because the industry proves to be economically unviable, or firms become financially unviable for their own reasons. This suggests that it is now more challenging to sustain long and complex GVCs, regardless if these are competitive and efficient.

The financial authorities do recognize the importance of efficient cross-border payments. The FSB has recently agreed on a Cross-Border Payments Roadmap with the specific objective of making cross-border payments faster, cheaper, more transparent, and inclusive. A similar initiative was started as part of the ASEAN Financial Integration Framework, with interoperability as a critical objective. More recently, we see concrete outcomes via Singapore’s PayNow, Thailand’s PromptPay, as well as Bank Indonesia and Bank of Thailand’s Cross-Border Quick Response Linkage.

These initiatives are in the right general direction, but two issues should be addressed. ASEAN has a vested interest to benefit from integration, but payments interoperability has been a challenge. This is a reflection of the inherent difference in financial market development among ASEAN jurisdictions. The ASEAN Economic Community, however, is premised on a regional value chain and the challenges with linking payment systems should be a priority of the authorities.

The FSB initiative, on the other hand, sets specific (for example, access and settlements) standards to be achieved by specific dates. How do these standards affect ASEAN and what do these mean in sustaining the current GVCs? The answers to these are beyond this FSR, but we need to recognize that they are parallel to the current discussions on supply bottlenecks.

Network rebalancing in a post-COVID-19 world? The headline issue is that bottlenecks already exist and are expected to remain into 2022. Meanwhile, higher-than-expected inflation has remained persistent. Where do all these then take us?

From our perspective, we appreciate these issues from the way the stakeholders interact with one another. These are not independent actions but rather chained cause-and-effect responses within a system, a network if you will, that has experienced a shock. The bottlenecks, for example, arise because the value chains have been disrupted, and not just because supply chains were suspended temporarily and are being rebooted. Inflation has risen in part because of the liquidity impact of fiscal stimulus and the spending decisions of consumers. This has also been buffeted by further developments from the supply-side, i.e., from oil prices and from the value chains.

In thinking about how the network may rebalance moving forward, it may be useful to think of at least three issues. First, COVID-19 has had a fundamental impact on demand. As presented in our previous FSR, there has been a redistribution in purchasing power that has made the socio-economically vulnerable even more vulnerable. This is relative to the cohorts who were already financially established and have been much less affected, if at all, by the suspension of livelihood activities. This redistribution will then affect the network of goods and services, arguably increasing the concentration towards those with disposable liquidity and purchasing power. Those who may have these will likely look towards the national government for further (and needed) support.

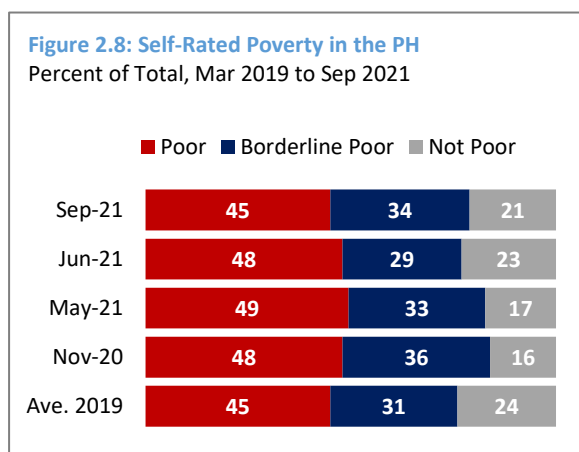
Second, the efficiency of GVCs has again been questioned in light of the pandemic. Should suppliers revert to producing some of the components onshore – referred to as onshoring – which would be more within their control even if it could mean a costlier product? The answer is not obvious at this juncture and could very well be a product-by-product decision. It could depend on what can be generated consistently by the local economy at some targeted level of production volume and quality standard. This may be to the

disadvantage of smaller, less mature markets. Yet, the ability to readjust and rebalance the network will require that transportation and logistics channels remain unhampered. If this is not possible with some reasonable certainty, cross-border production will always be at risk.

Third, the previous issue will also have to depend on cross-border payment arrangements. Clearing and settlement risk in some currency has been unavoidable but the digitization of finance may be tilting the discussion. Yet, the technology underlying financial innovation may also not be uniformly available across jurisdictions. This is where a choke point can arise between those who can versus cannot yet deploy digital cross-border payments facilities and amongst those who are still reliant on the longstanding standards. The point may crudely be that if the cross-border commodities cannot be smoothly settled, there might not be efficient cross-border value chains. This can exacerbate the commodity bottlenecks and have high inflation as the mechanism for rationing who gets (i.e., can afford) scarce commodities.

2.3. Inequality

The effect of COVID-19 has often been presented through the contractions in GDP. As massive as these contractions have been, they would generally understate the impact on households and consumers. The impairment of livelihoods has been unmistakable, particularly for those who were vulnerable even before COVID-19. Yet, even this cannot compensate for the permanency of lives lost. What one will find is that socio-economic inequities have been widened by COVID-19, driven by more adverse effects on those in the informal market and/or economically less fortunate. This socio-economic impact will have lasting effects.



Source: SWS

COVID-19 impacted family hunger and poverty. The surveys conducted by SWS show the increase in self-rated poverty during the first year of COVID-19. There is a noticeable decline for those who classify themselves as “Not Poor,” driven by corresponding increases for those who consider themselves “Poor” and a bigger increase for those who self-rate to be at the cusp (**Figure 2.8**).

There is, however, an interesting dynamic behind the raw figures. For the NCR, the portion of those who are “Not Poor” was unchanged, and you instead see a shift towards the “Poor” (**Figure 2.9**). This is unique to this region which represents roughly a third of the country’s GDP. One hypothesis then is that this result is reflective of the widening socio-economic gap. In the other regions, the decline in the “Not Poor” is significant, roughly a third for the rest of Luzon, 50 percent for the Visayas region and about 72 percent for Mindanao. In each of these, the increase has been driven by those who believe that they are at the margins of being poor.

While there was an overall improvement in the latest (September 2021) SWS survey, there is still disparity across regions. The share of “Not Poor” increased for the Mindanao region and the rest of Luzon but decreased for NCR and the Visayas region.

The loss of purchasing power can be seen in the employment data. In October 2021, there were 3.5 million unemployed persons 15 years old and over (PSA, 2021). Major industries that recorded the highest decline from September to October 2021 were Construction (-310,000), Transportation and storage (-156,000), Wholesale and retail trade, repair of motor and motorcycles (-151,000), Other service activities (-118,000), and Arts, entertainment and recreation (-54,000). In addition, there were at least 21,263 businesses that reduced its workforce and at least 2,639 completely closed its doors since January 2020 (DOLE, 2021). Low-income workers and those under a “gig economy” were disrupted from lockdowns and health safety issues that decreased their earnings amid higher domestic prices.

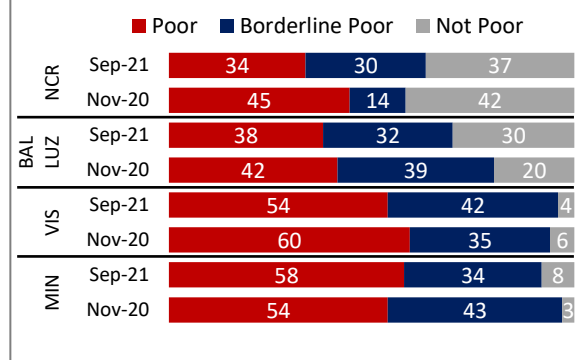
In addition, inflation disproportionately affects the lower income groups. Inflation for essential items such as food and non-alcoholic beverages in November 2021 was at 3.9 percent for all income households while the bottom three deciles experienced 4.2 percent. The same can be said for clothing and footwear (1.9 percent versus 2.5 percent) and housing, water, electricity, gas, and other fuels (4.1 percent and 4.6 percent). Transport services had also become relatively expensive for lower income families especially as prices of crude oil gained its momentum in Q2 2021 as global demand increased from the resumption of economic activities. For users of imported crude oil, this meant higher base cost.

The combined effect of the above is that COVID-19 caused the most vulnerable of families to lose their livelihood, thus weakening their purchasing power. Yet, they also faced higher inflation. This leads to the poverty data showing that most were affected but not the “Not Poor” in the hub of economic activity.

COVID-19’s underlying scars may not be fully reversed by recovery. The improving economic environment is a welcome turnaround from the bleak figures of the prior years. We can see the same in the latest (September 2021) SWS surveys which show a general increase in the proportion of those who rate themselves “Not Poor.” However, there have already been dislocations during the past two years, and these are not easily reversed by momentum alone, in large part because the downside risk to the vulnerable remain disproportionate to the downside of the well-endowed.

To at least not revert to widening the socio-economic gap, two facets are important. First, the development of public health infrastructure remains a priority. Over a year into the pandemic, the virus will continue to linger given its capability to mutate and cause recurring surges in new cases.

Figure 2.9: Self-Rated Poverty in the PH, By Area
Percent of Total, Nov 2020 to Sep 2021



Source: SWS

“COVID-19 caused the most vulnerable of families to lose their livelihood, thus their purchasing power.”

Accessibility, especially of the vulnerable, to hospital beds, vaccine shots, and medical supplies is imperative to manage the virus.

Second, purchasing power needs to be restored, if not enhanced, particularly for the vulnerable. Without this, vulnerable families will not have the wherewithal to move forward and would instead have to depend on national support. This is not a viable option.

To mitigate this, a medium-term concern is the fit of the labor force to the needs of the New Economy. The latter will see a bifurcation where one segment will require less physical contact and rely more on technology, while other economic activities need such person-to-person interaction by default. With academic programs disrupted by COVID-19, there will be those cohorts who may not be fully prepared to compete and operate in the digital world. Production will gear up towards more digital means and this shift will likely tend to demand specialized skillsets. Even those activities which typically require face-to-face interaction such as personnel-intensive sales may see some shift from in-store activity to online platforms. While the benefits of technology should be maximized, there can be some early dislocation against manual labor. This needs some attention.

Purchasing power can change the economic landscape. Without a doubt, purchasing power sustains current welfare and is the engine for future activity. COVID-19 disproportionately disrupted both the extent and the distribution of this purchasing power. As we have already discussed in the prior FSR, this has near to medium-term consequences, for example, in the educational system, in retail trade, and in general economic activity.

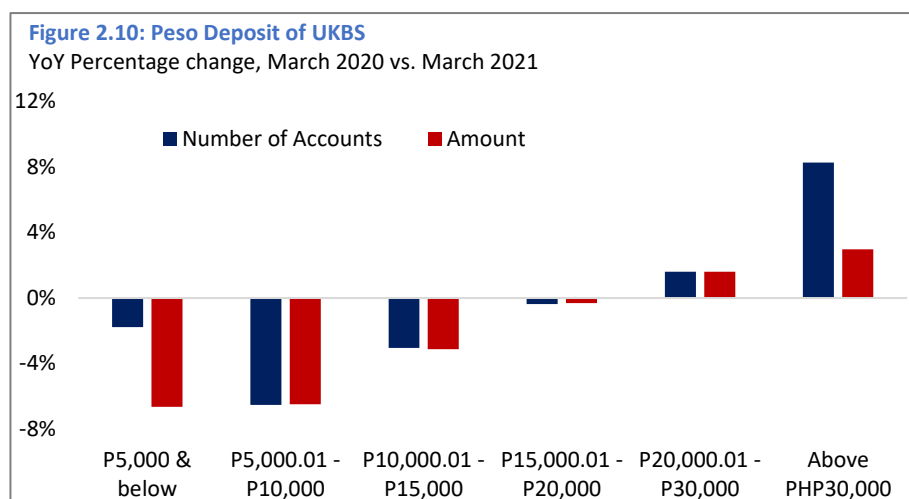
Since socio-economic gaps are magnified, the importance of social safety nets is highlighted. Through the Bayanihan to Heal as One Act, subsidies were given to roughly 18 million vulnerable households representing 70 percent of the population (World Bank, 2021). The digital transfer of social benefits has provided quick economic assistance to vulnerable households and cash agents enabled banks to reach the unserved and underserved groups. These amelioration and other government assistance programs provided lifelines for affected households (SWS, 2020; IPA, 2021) but the accelerated fiscal spending also increased the fiscal burden on the government budget.

An interesting fact that is often overlooked though is that total bank deposits have actually increased throughout the pandemic. This suggests

that total purchasing power has increased. This may be consistent with the survey results that show that the “Not Poor” remained unchanged in the NCR at the height of the impact of the pandemic.

There are, however, segments of society which have been disrupted by COVID-19. Taken with the preceding, this should validate that the distribution of purchasing power matters, not just the total, when assessing the impact of a shock.

In the case of bank deposits, there were indications that affected households withdrew from their bank deposits to supplement their income (**Figure 2.10**). Results from an SWS survey (2020) showed that roughly 60 percent of households fund their daily family expenses using money amelioration or from personal savings. A separate study showed, however, that people who received government aid still have had to draw from their savings for their daily expenses (IPA, 2021).



Source: BSP, OSRM Calculation

Latest (September 2021) statistics showed improvement in the left tail of this curve. Deposits ranging from PHP15,000 and below were back to (and even better than) pre-pandemic level.⁵ This development may not matter at this point in terms of amounts. At least in theory, however, this tells us that the market remains liquid as a whole and investable funds are available. What this “hides” is that, arguably, the same cohorts are able to invest. The savers whom we ideally want to nurture to migrate into investors, eventually, have taken a setback. Moving forward, economic momentum cannot rely on the upper 50th percentile of the economy but “society” has to think of the whole which has to include the situation of those at the lower end of this socio-economic distribution.

Inclusive recovery is key to addressing the systemic risks ahead. Having the economic conditions for growth is a welcome development but the effect of the pandemic is not only seen in the aggregate GDP but more on its distribution. The impact of the pandemic on people should not be underestimated. After all, the future of the economy rests with its people.

⁵ The number of accounts and peso amounts of deposits ranging from PHP15,000 and below have increased by 22.2 percent and 7.8 percent, respectively, from March 2020 to September 2021

The impact of the pandemic on people should not be underestimated. After all, the future of the economy rests with its people.

What would be important in this recovery path is understanding the changing risk behavior. The combined effect of lost learning opportunities, and uncertainty in job and financial security may affect the local economy even after the country exits from the pandemic. This has an impact on demand-side dynamics because of uncertainties in current and future income and cash flows. Supply-side will have to adjust to be viable. Meanwhile, protecting jobs is a sustainable alternative to government subsidies to keep purchasing power. An inclusive recovery can mean that all who want to be in the labor force can participate. This circles back to the importance of education as pathways of the future workforce.

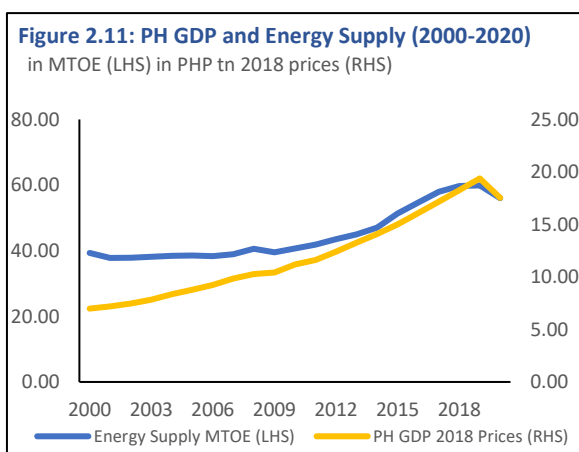
While the precise form of the next stage of the pandemic remains uncertain, what is clear is that financial stability is about improving the current and future welfare of the Filipino people. People will learn to live differently under the new normal and this is likely to have rippling effects on the economy. A welfare-centric view of financial stability requires awareness of the distribution of gains and losses across various stakeholders and intervention through policies anchored on broader and comprehensive information.

2.4. Climate change and its implications on the energy sector

The dislocations caused by COVID-19 and the resulting spillover effects require the attention of authorities. However, the deeper market outcomes are more likely to unfold over a protracted period, a “slow burn” rather than imminent cliffs. But, as long-term as climate-related risks are, they need more immediate action as well. This is because any

gain is also slow-burn in nature. But aside from the slow-forming results, the most recent UN Climate Change conference highlights the trade-offs that arise from achieving the desired outcomes. This section looks at this issue as part of our “post-COVID-19” prognosis. Rather than look at climate risks *per se*, we see all these from the lens of the energy sector.

The energy sector is pivotal to the economy. Economic growth and energy consumption have always been, rightly so, historically intertwined. Energy enables economic activity, and growing economies demand more energy. The same is true for the



Source: DOE

Philippines (**Figure 2.11**). Despite having an estimated contribution of 3.4 percent to the country's GDP, energy is integral to the functioning of most, if not all, industries, and households in the country.

The end goal though is sustainable growth through a cleaner environment. The recent Conference of the Parties meeting in Glasgow shows the continuing efforts of global stakeholders to address climate change risks. That this is the 26th, such meeting is itself a message of resolve. Nonetheless, the view after COP26 is that the global economy is not closer to achieving its self-imposed targets. This reiterates the point that the objective of a cleaner environment is clear and backed by scientific knowledge but the path to achieving that goal is fraught with practical hurdles.



**The energy sector is pivotal to the economy...
Energy enables economic activity, and growing
economies demand more energy.**



Fossil fuels have been the target of climate change. A greener environment is possible by limiting global warming. This is measured, in turn, as a cap of 2 degrees Celsius above pre-industrial levels, but with a stronger preference to set this further at just 1.5 degrees. To give context to these thresholds, experts have argued that at 2 degrees, extreme weather conditions could transform densely populated areas either into uninhabitable deserts or raise sea levels to flood them. Furthermore, the UN has pointed out that the difference between 2 degrees and 1.5 degrees translates to 420 million people – one in every 20 persons by today's population count – being less frequently exposed to extreme heatwaves.

Unfortunately, the Intergovernmental Panel on Climate Change sees the world exceeding over the next two decades the warming threshold of 1.5-degree Celsius. This could have only raised the stakes for COP26, not just as a major follow through to the Paris Agreement (COP21) but also as the venue where “coal is consigned to history.”

This is where the transition risks lie. The high hopes leading to COP26 were dashed when China, India, and the US chose not to sign the Global Coal to Clean Power Transition Statement. This is important since the three jurisdictions account for 44.1 percent of global GHG emissions, suggesting that the shift out of coal use in the medium-term may not be easy despite long-term climate damage. Furthermore, the statement refers to the end of the use of coal “by” 2030 for developed countries and by 2040 for developing countries. Instead, the final statement uses the language of ending coal “in” the 2030s and 2040s, respectively, which pushes the deadline up to a full decade.

COP26 heavily focused on coal, but there are other fossil fuels to consider. We also continue to burn natural gas for power. Transportation and trade rely heavily on oil in the form of gasoline and diesel. Plastics we use every day come from both oil and natural gas. Solutions such as electric vehicles, utility-scale batteries hold potential in lessening our reliance on fossil fuels, but they still need to catch up in terms of practicality. An example of another practical hurdle is that the more we rely on alternative technologies, such as lithium and cobalt for batteries, the more likely these become scarce and costly. There is, therefore, impetus for sustainable technological advancements to grow and accelerate in terms of availability. The reality is that there is only so much assistance that can be given in making newer technologies more economically viable. The solutions will have to be accessible in terms of costs and reach, lest we put the burden of transition to the poorer demographics.

The transition of fossil fuels is literally expensive. As the transformations are not going to be costless, AEs were expected to take the lead in financing climate change adaptation. Thus far, the pledges have fallen short of the committed USD100 billion for 2020 and might take up to 2022 or 2023 to complete. Unfortunately, despite the sizeable figure, this was first broached in 2009. The UN Environment Programme has since put the adaptation costs for low-income countries between USD140 billion to USD280 billion globally by 2030 and up to USD500 billion by 2050. The costs will only continue to compound from the shortfalls of the present, and as global warming become more dire.

In a clear breakthrough, 20 countries agreed to end international financing of projects of fossil fuel by end 2022, extending the current agreement on coal to gas and oil as well. The US, EU and UK announced further that they would assist South Africa by providing partial funding for her transition away from coal.

The manifestation of the Philippines. All of these matter to the Philippines. While the country did sign unto the Global Coal to Clean Power Transition Statement, it did make the specific manifestation that there may be some divergence between the agreed climate change initiatives versus the amount of GHG that each country emits. This recognizes the differentiated road ahead for different jurisdictions, which will then impact on the extent of international support needed by a developing economy to move forward on the transition.

The Philippines likewise reiterated its call for energy security as a top priority. This is very much in line with the established fact that the condition of the energy sector correlates directly with the prospects of the general economy. By extension, as the Philippine manifestation points out, this will directly impact upon the welfare of the Filipino people.

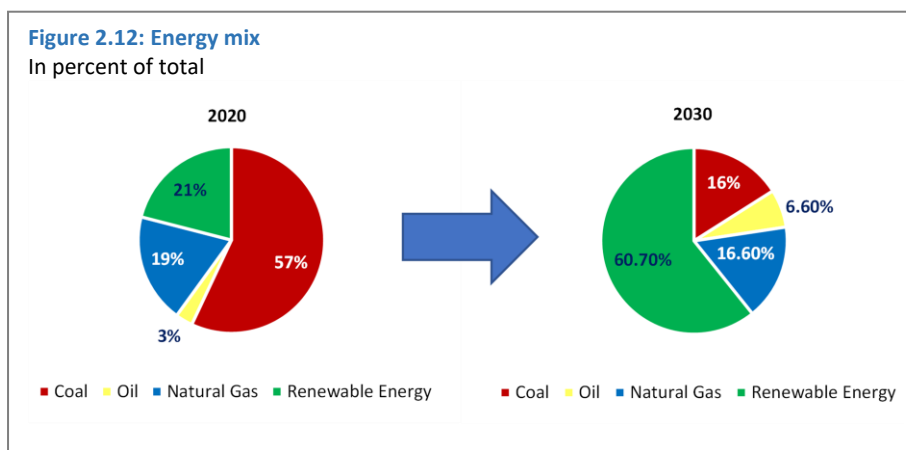
In a broader context, a takeaway from the Philippine manifestation is the recognition of important nuances. Specifically, the issue is less about the desired end goal. Rather, the challenge is more of the path towards that

goal. Different jurisdictions are situated differently and having more absolute thresholds will be difficult to enforce. There will also be challenges with the likely dislocation within the energy sector, particularly for those engaged in fossil fuels. This too needs to be managed.

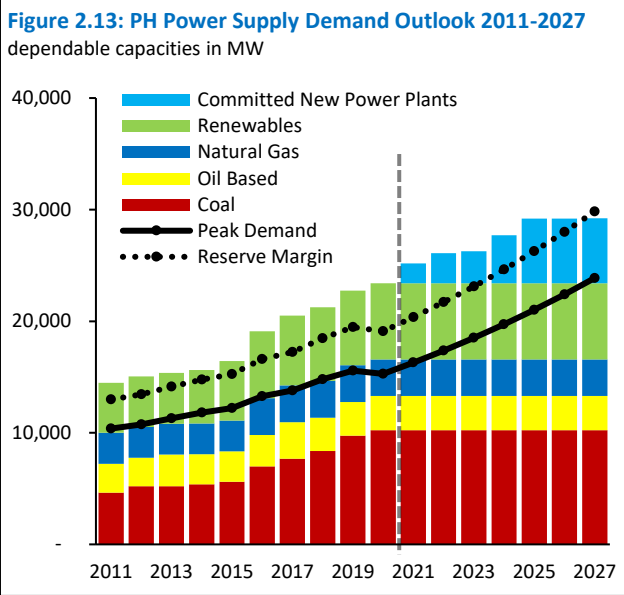
Physical risks are a separate matter but just as highly relevant for the Philippines. Various studies put the country as among the riskiest, if not the riskiest, in terms of severe weather occurrence i.e., number of cyclones every year within our area of responsibility, particularly those that eventually hit the country. As sea levels rise, flooding is also expected to move further inland. Yet, the probability of experiencing a heatwave is also higher than the longer-term average.

The plans forward for the Philippines. To better address the physical risks, the insurance industry – spearheaded by the Insurance Commission – has established the PCIF. Developed with National Reinsurance Corporation of the Philippines and the Philippine Insurers and Reinsurers’ Association, the facility will help insure businesses while citizens rebuild and re-establish their pre-catastrophe livelihood. The establishment of PCIF is also expected to boost the capacity to take on catastrophe risks.

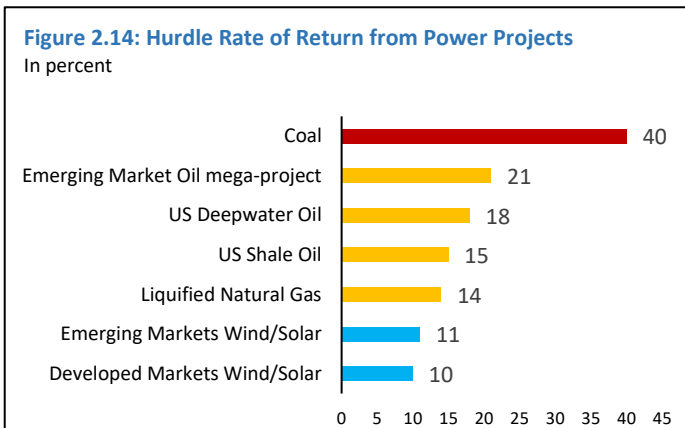
For transition risks, the Philippines has committed to reduce 75 percent of GHG emissions by 2030 as part of its Nationally Determined Contribution against a projected business-as-usual cumulative economy-wide greenhouse gas emission of 3,340.3 million metric tons of carbon dioxide equivalent from 2020-2030. The country’s renewable energy targets by 2030 are a key cog to meeting our commitments. Since the energy sector accounts for around 50 percent of total carbon emissions, majority of efforts are focused on reducing carbon emissions of power producers (**Figure 2.12**).



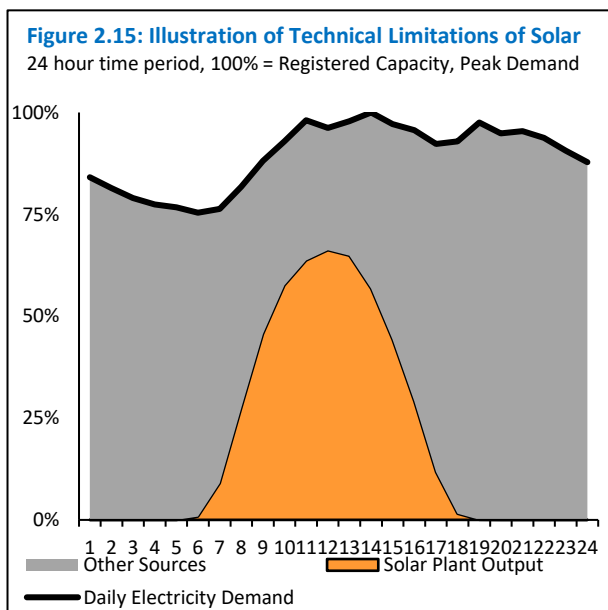
Source: DOE



Source: DOE



Source: Oxford Institute of Energy Studies



Source: OSRM Staff Computations using Wholesale Electricity Spot Market Data

While there is no doubt that climate change is global in nature, the expectation remains that lower income countries are more vulnerable to losing a larger share of their economic output due to climate change. This can put in better perspective the manifestation of the Philippines at COP26 where we highlight the practical challenges of this desired transition. The recent power supply demand outlook from the Department of Energy highlights the need in striking the delicate balance between adequate provision of energy to support the growing demands of the economy and the impending transition towards renewables (Figure 2.13). Beyond generating electricity, the country relies heavily on oil for transportation. Diesel powered trucks drive supply chains, while jeepneys and buses move the workforce. The reliance of the economy on energy and fossil fuels will inevitably need to be balanced with our long-term commitments on climate change.

This too will have an impact on financial markets. Energy-related projects are big-ticket items and would often attract a consortium. Yet, markets are cautious of the risk of stranded assets in fossil fuel. A sudden reversal in exposure or a signal of finite use can have significant financial institution effects. In addition, the cost of coal financing has increased over the past decade with investors relying on higher returns for fossil fuel projects as opposed to renewables (Figure 2.14).

Market forces are also pushing for the adoption of renewable energy, particularly solar and wind. However, fossil fuels remain the core option, at the very least serving as a key bridge to address some limitations of renewable energy (Figure 2.15). The volatility of fossil fuels prices can easily contribute to inflationary pressures, as well as a decline in economic growth.

“ While there is no doubt that climate change is global in nature, the expectation remains that lower income countries are more vulnerable to losing a larger share of their economic output due to climate change. ”

There is an urgent need for better climate change-related disclosures. The lack of granular data, such as physical risk metrics per firm/household or the exposure of banks to carbon- vs. renewables-based energy producers, limits our appreciation of the financial costs of climate change and the shift to greener energy sources. The cooperation of the private sector is necessary, especially on transparency and the quality of ESG reporting to have better data-driven frameworks. The Securities and Exchange Commission’s work on sustainability reporting of publicly listed companies is a promising start to getting more climate change-related information and enhancing our understanding of risks.

All of these demonstrate that the transition to a more sustainable energy sector requires close monitoring and orderly progression. Considering the tight correlation between GDP and energy, the mid-term prospects present a dilemma. The exit from coal and other heavy GHG emitting power plants would need rapid investments in renewable energy. At the same time, creditor institutions must continue to actively take a long view so as to avoid disorderly pricing, and worse, stranded assets. Unless coordinated with all stakeholders, this has the potential to become a systemic risk.



3

DATA, INFORMATION, AND SYSTEMIC RISKS AHEAD





DATA, INFORMATION, AND SYSTEMIC RISKS AHEAD

On average, 2021 has been a vast improvement over 2020. Two things, though, stand out.

First, there are significant differences across each one's situation that can render average measures rather meaningless. This is precisely the point of systemic risk analysis because (a) we need to consider how the same issue is different for different stakeholders, and (b) how interactions can change outcomes both today and tomorrow. Both have implications on the information we need to pave the road forward.

Second, the discussions above suggest that there remain issues that need to be addressed. These are not hypothetical concerns as each of the points in Chapter 2 are live cases. They are unlikely to resolve on their own with time and could cause follow-through vulnerabilities without some intervention.

Data, data, data

As each crisis surprises, there will always be the urge to generate new regulatory information. With the GFC, the path forward was to develop the networks that model the interactions between stakeholders. COVID-19 builds on this because we worry about super spreaders where some are asymptomatic, but others are not. Societal outcomes cannot be determined by “adding” the individual conditions in the population and would instead require a measure of the “collective whole” knowing that the profile of “winners and losers” has changed.

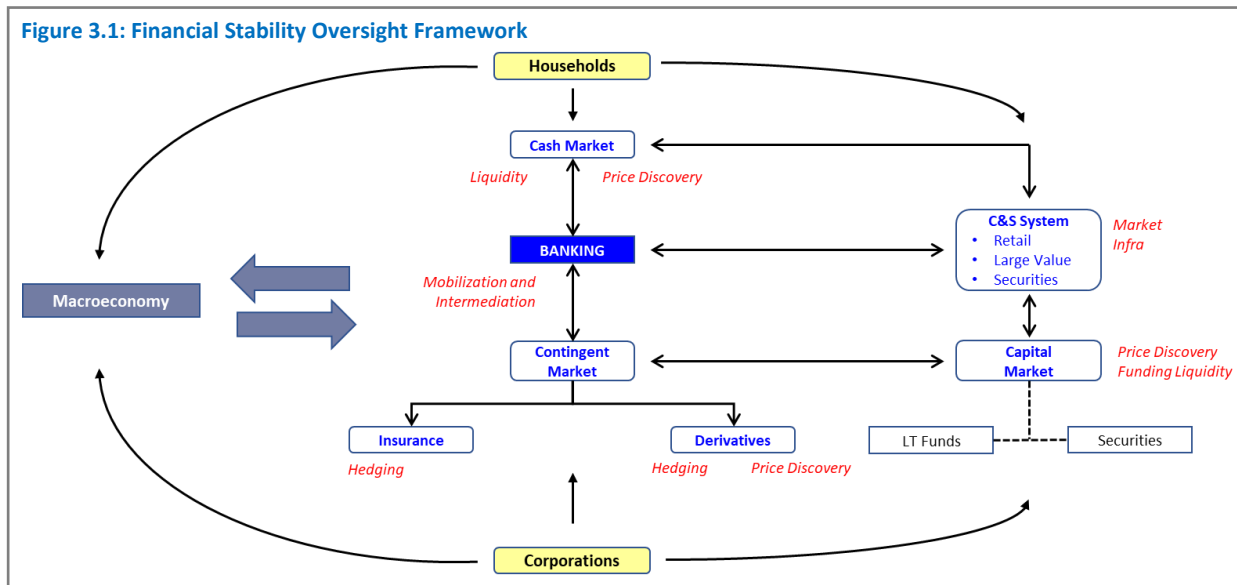
Unfortunately, even before COVID-19, data has been a perennial challenge for systemic risk analysis. We have argued before that systemic risks cannot exclusively rely on stylized macrofinancial data because these reflect the underlying interaction between stakeholders only after the fact. We have also made the point, following Aristotle and the Fallacy of Composition, that the whole is different from the sum of the parts. This seems, ironically, to take us somewhere between “too macro” and “too micro” in terms of data.

Prior work by Heath and Goksu (IMF, 2017) suggests that financial stability analysis should focus on (a) the resilience of the financial system, (b) systemic vulnerabilities (debt, credit, asset prices), and (c) structural vulnerabilities (interlinkages and spillovers). They find data gaps in the following areas:

- Shadow banking and non-bank financing – the activity of the non-bank sector has been increasing while maintaining a level of diversity across different NBFIs or their activity. This sector is also less regulated than banks which can add a layer of unintended regulatory arbitrage or activity substitution.
- Capital flows – as the global economy is more integrated, there is also a similar greater integration in financial flows. This expands the financing market but also generates more volatility to same source market triggers. A differentiation between commodities financing and financial market flows (and the latter between portfolio and direct investments) would be needed.
- Corporate borrowing – this is a natural offshoot of the prior two issues because corporations are able to access global markets, both as part of value chains and for their financing. It is no longer enough to determine dependencies (although this information is still raw) but a more detailed profiling is needed.
- Granular data and micro data – these follow from the need to analyze underlying risk behaviors. However, this will involve more transactional information and legal issues will invariably arise. In some cases, there is a need to expand on existing data (repos, securitization) to be able to have a better reading of cascading effects.
- Real estate markets – mortgages and commercial real estate have always been a higher-priority issue for regulators because most credit-related crises have a direct bearing on this sector. For developers and real estate consumers, they are vulnerable to market swings, which affect both debt servicing and the valuation of the real estate as an underlying asset.
- Insurance companies – the nature of InsCos as having shorter-term assets and longer-term liabilities was not seen as a potential crisis until the GFC. The authorities need to have better information on concentration as well as on investment risks, relative to InsCos on their own as well as the risk transfers involved.
- Households – ultimately, systemic risk analysis has to bear upon individuals and households. Yet, organized data on debt servicing is often lagged, if any. Bringing the analysis “closer to home” requires a cleaner look at the home and the path leading to the home.

This list validates our own formulation of the issues⁶ and represents a good to-do list of what data we need to generate. Schematically, the data naturally collaborates our model for the oversight for financial stability purposes (**Figure 3.1**).

⁶ 2017 FSR listed the role of more granular data to better measure identified vulnerabilities; 2nd Semester 2020 FSR reiterated the need to reinforce granularity and timeliness of data; and 1st Semester 2021 FSR presented the use case of leverage, liquidity and interconnectedness data in the Macroprudential Stress Test.



Source: BSP, OSRM

What COVID-19 has done is, arguably, to (re)emphasize some of the data needs. Recent work by multilateral agencies point to the increased role of non-bank finance and the ability of markets to sustain liquidity demands. As this is not an area where much regulatory data is available, this should be a priority concern.

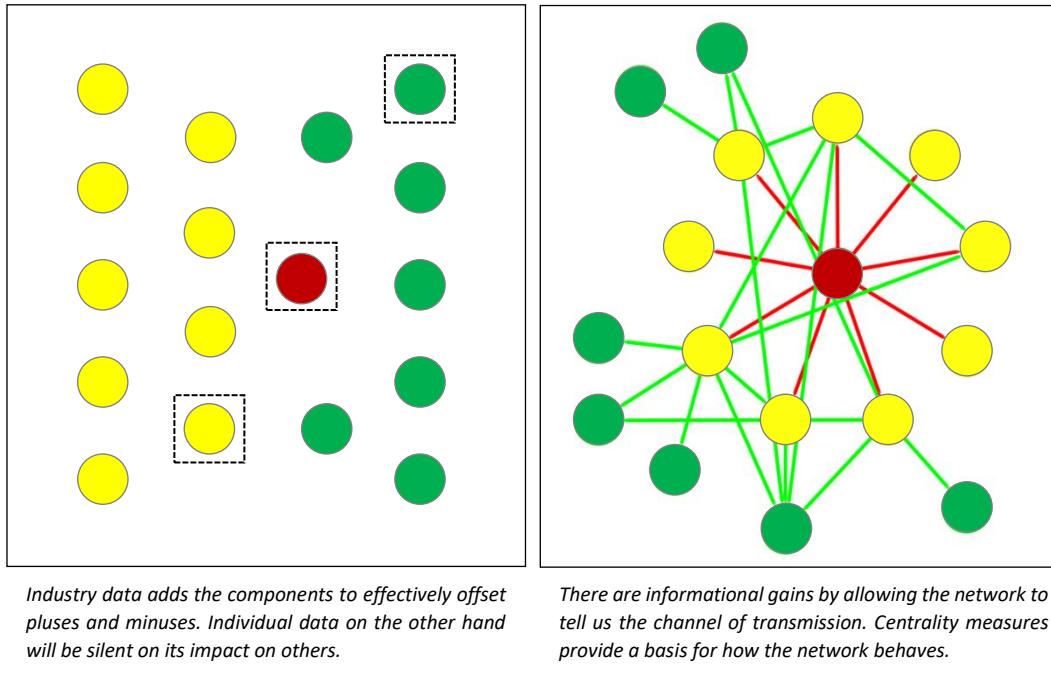
In addition, it is now conceded that policy rates will inevitably rise in AEs, much sooner than initially anticipated. We need to quickly establish the likely spillovers to EMDEs. Debt servicing pressures will again resurface, perhaps re-igniting the fuse on NFCs which may still be adjusting to impaired revenue flows and changed market conditions. The likely impact on growth and recovery requires particular attention.

Data to better reflect network linkages will continue to be a priority. There is a significant difference in informational content between taking an industry or its individual components versus the linkages and the sequencing of the links that bind them in the natural course of business operations (**Figure 3.2**).

All of these improve headline information. There needs to be a purposeful emphasis as well on granular household data. This is because we anticipate that the lasting spillovers of COVID-19 will be evident on households, specifically those who were already socio-economically vulnerable even prior the pandemic. The widening social inequality we talked about in Chapter 2 will take time to fully unravel in most data series, suggesting some added urgency in introducing policy interventions.

With the GFC and COVID-19 in mind, it is unmistakable that more information, specifically granular in nature, is required. Yet, the value is not limited to more information but how the information is processed. This brings us back to the analogy that the authorities seek a better coloring book where each page has more dots, and the task is to find a way to

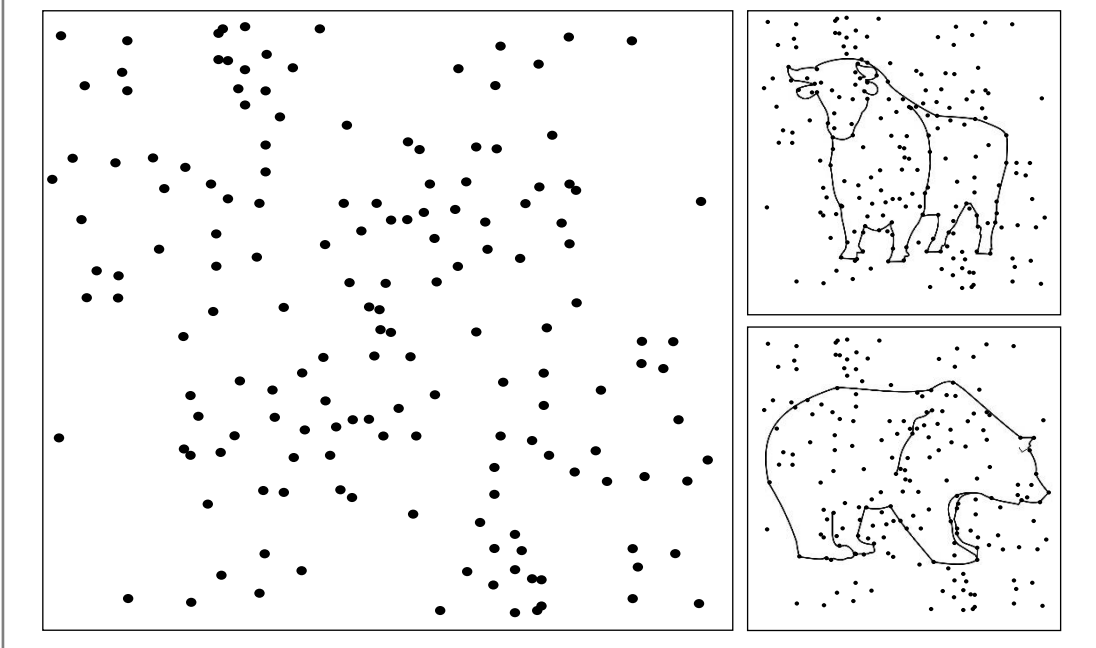
Figure 3.2: Aggregated Industry Data vs. Network Linkages



Source: BSP, OSRM

connect the dots so that the proper image is revealed. Multiple images are possible from a sheet full of dots, but what is sought is the image that can appropriately identify future vulnerabilities, given conditions thus far, which need some intervention (**Figure 3.3**).

Figure 3.3: Challenges in Connecting the Dots



Source: BSP, OSRM

“ It may not always be a bear or a bull, but the market may just be (following from the line favored by the late Muhammad Ali) floating like a butterfly though resilient as a bee. ”

Of late, various authorities have been enamored with prospects of Big Data. The prospects of more real-time geo-spatial data are exciting when compared with backward-looking GDP data that itself is a couple of months dated. In current practice then we now see mobility data in use, just as we are required to use QR codes for entering malls.

While this seems to be in line with the desire for more granular data, there remains functional challenges. Thus far, the current business cases for Big Data are not those typically used for financial stability analysis. We would want to look more granularly at credit, concentration, leverage, and liquidity issues, specifically of the type flagged by Heath and Goksu. That said, there may be a role to play when targeting household-level interventions, balancing the case for efficacy versus the privacy issues that have been raised.

In the end, we have all heard of the 5Vs of data: volume, velocity, variety, veracity, and value. More data can be useful, but only so if there is some organized method for processing timely, broad-based, and validated data. This is along the line of our previous point: whether one “sees” a bull or a bear from the enormity of the available dots is going to depend on inclination and interest. In other words, there is that danger that what one finds depends on what one is looking for in the raw data. It may not always be a bear or a bull, but the market may just be (following from the line favored by the late Muhammad Ali) floating like a butterfly though resilient as a bee.

EPILOGUE

Taken collectively, we are ending 2021 with a much healthier market than the one we saw in 2020. But things do not end there because we still have to be concerned with speed bumps in 2022.

If we go by the Spanish Flu, the pandemic itself took three years but regular flu vaccines did not become routine until three decades after. From what we have seen, the economy will get back to 2019 country income by 2022, the 3rd year of the pandemic. There are still costs from the pandemic and recouping these (at the aggregate) will depend on future GDP growth rates. Assuming a 5 percent real growth for 2021 and 7 percent thereafter, the point of recovering lost incomes takes us to Q4 2023.

That assumes further that there are no complications with the COVID-19 virus. The surges in Europe and in the US throw a precautionary tale of fluid health conditions. Omicron adds a further wrinkle and how this new variant pans out remains to be seen. If anything, then, the 3-pillar approach we advocate in section 2.1 should be worth exploring. This is more the case because the burdens of any crisis are typically not equally borne among stakeholders. This is the point of section 2.3. Given the disparities in socio-economic opportunities, the headline numbers may not fully reflect a widening gap between the “haves” and “have nots.” This tells us that median numbers take on a bias towards the upside because the distribution is not symmetrical in the first place and disfavors the vulnerable. The impact though on those who bear the burden can take several years to play out, often unmonitored by conventionally available data.

In fact, the irony is not lost that the global recovery in 2021 is itself causing adverse spillovers outside the AEs. The supply bottlenecks and high inflation are the immediate fires from the reboot of economies this year. These will take time to untangle and in between and as a result, the EMDEs – each of whom are price-takers in the global economy – will have to bear much in adjustment costs. If these adjustments cover not just market prices like exchange rates and interest rates, but also cover a rethink of structural relationships in the value chains, then we are talking of a sizeable shift in global cross-border activity. This too will take time to play out.

As these changes evolve, there are structural issues already playing out in the background. Climate-related risks (and while not discussed here, the digitization of finance and cyber-related risks) need to be given full attention. The issue should not be because we still doubt that there are long-term catastrophes involved but rather how do we address them without ruining the road ahead with potholes. This will require tempered trade-offs by stakeholders who must be on the same page. This is an important undertaking, and it is a very difficult one.

These take us to where we started in this FSR: what have we learned from COVID-19 that puts us in good stead for the path ahead.

We made the point that systemic-ness is all about understanding how agents interact with one another. These individual interactions come together to determine societal outcomes that cannot be discerned by looking at the action of each agent, either on their own or even when all added together. This is what makes systemic risk unique.

BIBLIOGRAPHY

- Bangko Sentral ng Pilipinas. (n.d.). *Philippine Banking System Published Balance Sheet*. BSP Statistics - Banking Financial Statements. Retrieved from <https://www.bsp.gov.ph/SitePages/Statistics/BSFinancialStatements.aspx?TabId=3>
- British Broadcasting Corporation. (15 November 2021) *COP26: What was agreed at the Glasgow climate conference?* British Broadcasting Corporation (BBC). Retrieved from <https://www.bbc.com/news/science-environment-56901261>
- Cassidy, A., & Formanek, I. (7 November 2021). *Reality check: Here's what the COP26 deals actually mean for our future climate*. CNN. Retrieved from <https://edition.cnn.com/2021/11/07/world/cop26-climate-agreements-reality-check-intl/index.html>
- Crockett, A. (2000). *Marrying the micro- and macro-prudential dimensions of financial stability* [PDF Document]. Retrieved from <https://www.bis.org/speeches/sp000921.htm>
- Department of Labor and Employment. (2020). *Regular Job Displacement Monitoring Report Briefer as of 26 October 2020*. Job Displacement Report.
- Department of Health. (n.d.). *COVID-19 CASE TRACKER*. Department of Health. Retrieved from <https://doh.gov.ph/covid-19/case-tracker>
- European Central Bank. (28 September 2021). *Consolidated financial statement of the Eurosystem as of 24 September 2021*. European Central Bank Press Release. Retrieved from <https://www.ecb.europa.eu/press/pr/wfs/2021/html/ecb.fs210928.en.html>
- European Central Bank. (n.d.). *Annual consolidated balance sheet of the Eurosystem*. European Central Bank. Retrieved from <https://www.ecb.europa.eu/pub/annual/balance/html/index.en.html>
- European Systemic Risk Board (ESRB). (2021). *Covid-19 Policy Measures by Country*. Retrieved from <https://www.esrb.europa.eu/home/search/coronavirus/countries/html/index.en.html>
- Federal Reserve. (n.d.) *Total Assets of the Federa Reserve*. Federal Reserve Recent Balance Sheet Trends. Retrieved from https://www.federalreserve.gov/monetarypolicy/bst_recenttrends.htm
- Financial Stability Board. (13 July 2021). *Lessons Learnt from the COVID-19 Pandemic from a Financial Stability Perspective—Interim Report*. Retrieved from <https://www.fsb.org/wp-content/uploads/P130721.pdf>
- Financial Stability Coordination Council. (June 2018). *Financial Stability Report 2017*. BSP Publications and Research. Retrieved from https://www.bsp.gov.ph/Media_And_Research/FSR/FSR2017.pdf
- _____. (April 2020a). *Financial Stability Report April 2020*. BSP Publications and Research. Retrieved from https://www.bsp.gov.ph/Media_And_Research/FSR/FSR2020_APRIL.pdf
- _____. (October 2020b). *Financial Stability Report 2nd Semester 2020*. BSP Publications and Research. Retrieved from https://www.bsp.gov.ph/Media_And_Research/FSR/FSR2020_2NDSEM.pdf
- _____. (July 2021). *Financial Stability Report 1st Semester 2021*. BSP Publications and Research. Retrieved from https://www.bsp.gov.ph/Media_And_Research/FSR/FSR2021_1STSEM.pdf
- _____. (June 2020). *Macroprudential Policy Strategy Framework: The Case of the Philippines*. BSP Publications and Research. Retrieved from https://www.bsp.gov.ph/Media_And_Research/MacropprudentialPolicyStrategyFramework/MPFSF_June2020.pdf
- Heath, R., & Goksu, E. (2017). *Financial Stability Analysis: What are the Data Needs?* International Monetary Fund Working Paper No. 17/153. Washington, DC: International Monetary Fund. Retrieved from <https://www.imf.org/en/Publications/WP/Issues/2017/07/10/Financial-Stability-Analysis-What-are-the-Data-Needs-45013>
- Ijtsma, P., Levell, P., Los, B., & Timmer, M., (18 December 2018). *The UK's Participation in Global Value Chains and Its Implications for Post-Brexit Trade Policy*. Fiscal Studies: The Journal of Applied Public Economics. Volume 38, Issue 4 of Special Issues on Brexit: New Evidence and Policy Perspectives. Retrieved from <https://onlinelibrary.wiley.com/doi/10.1111/1475-5890.12176>
- Innovations for Policy Action. (January 2021). *Cash Transfers in the Philippines: Empowering Households for Economic Recovery*. Innovations for Policy Action. Retrieved from https://www.poverty-action.org/sites/default/files/publications/Philippines%20RECOVR%20Cash%20Transfers%20Policy%20Brief%20Formatted_Jan%202021_0.pdf
- International Monetary Fund. (October 2021). *World Economic Outlook: Recovery During a Pandemic*. International Monetary Fund. Retrieved from <https://www.imf.org/en/Publications/WEO/Issues/2021/10/12/world-economic-outlook-october-2021>
- Okamoto, G. (20 July 2021). *Seizing the opportunity for a pro-growth, post-pandemic world*. IMF Blog. Retrieved from <https://blogs.imf.org/2021/07/20/seizing-the-opportunity-for-a-pro-growth-post-pandemic-world/>
- Our World in Data. (n.d.). *Coronavirus (COVID-19) Vaccinations*. Our World in Data. Retrieved from <https://ourworldindata.org/covid-vaccinations>

- Philippine Statistics Authority. (7 December 2021). *Summary Inflation Report Consumer Price Index for the Bottom 30% Income Households (2012=100): November 2021*. Philippine Statistics Authority Press Releases. Retrieved from <https://psa.gov.ph/press-releases/id/165432>
- Philippine Statistics Authority. (7 December 2021). *Labor Force Survey: Unemployment Rate in October 2021 at 7.4 percent*. Philippine Statistics Authority LFS Reports. Retrieved from <https://psa.gov.ph/statistics/survey/labor-and-employment/labor-force-survey/title/Unemployment%20Rate%20in%20October%202021%20is%20Estimated%20at%207.4%20Percent>
- Ravalo, J., (November 2010). *Financial Regulatory Reform*. Speech for A.M. Tetangco., Jr. at the Bank of Japan - Bank for International Settlements High-Level Seminar.
- Rehn, O. (2021). *It's the resilience, smarty! – Lessons of the COVID-19 crisis for systemic risk analysis and financial sector policies*. Speech presented at the Bank of Finland and European Systemic Risk Board, Finland, Helsinki. Retrieved from <https://www.bis.org/review/r210702g.pdf>
- Singh, D., & LaBrosse, J., (2012). *Developing a Framework for Effective Financial Crisis Management*. Organisation for Economic Cooperation and Development. Retrieved from <https://www.oecd.org/finance/financial-markets/49191776.pdf>
- Swaminathan, A. (19 November 2021). *Supply chain issues 'driven by three key variables,' Veritiv CEO says*. Yahoo Finance. Retrieved from <https://finance.yahoo.com/news/supply-chain-issues-three-key-variables-veritiv-ceo-134932560.html>
- Shin, H. (2019). *What is behind the recent slowdown?* Speech presented at the "Public Finance Dialogue" workshop for European Economic Research, Berlin. Retrieved from <https://www.bis.org/speeches/sp190514.htm>
- Social Weather Stations. (29 May 2020). *SWS May 4-10, 2020 Covid-19 Mobile Phone Survey – Report No. 6: For daily expenditures, 45% of Filipino families use money earned from a job, 39% use money amelioration, and 21% use personal savings*. Social Weather Stations Media Releases. Retrieved from [http://www.sws.org.ph/downloads/media_release/pr20200529%20-%20May%202020%20Cov19%20Mobile%20Survey_Sources%20of%20money%20for%20daily%20family%20expenses%20\(media%20release\).pdf](http://www.sws.org.ph/downloads/media_release/pr20200529%20-%20May%202020%20Cov19%20Mobile%20Survey_Sources%20of%20money%20for%20daily%20family%20expenses%20(media%20release).pdf)
- Social Weather Stations. (25 July 2021). *Second Quarter 2021 Social Weather Survey: 48% of Filipino families feel Poor; 23% feel No Poor, 29% feel Borderline Poor*. Social Weather Stations. Retrieved from <http://www.sws.org.ph/swsmain/artcldisppage/?artcsyscode=ART-20210725144428>
- Taleb, N. (2007). *The Black Swan: The Impact of the Highly Improbable*. New York: Random House.
- Taglioni, D., & Winkler, D., (2016). *Making Global Value Chains Work for Development*. Trade and Development. World Bank. Washington, DC. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/18421/880530BRI0EP140d0VC0knowledgeOnotes.pdf?sequence=5&isAllowed=y>
- United Nations. (n.d.). *COP26: Together for our planet*. United Nations. Retrieved from <https://www.bbc.com/news/science-environment-56901261>
- World Bank. (27 January 2021). *COVID-19 Impacts on Low Income Families in the Philippines*. World Bank. Retrieved from <https://www.worldbank.org/en/country/philippines/brief/covid-19-impacts-on-low-income-families-in-the-philippines>
- Yonzan, N., Lakner, C., & Mahler, D. (7 October 2021). *Is COVID-19 increasing global inequality?* World Bank Blogs. Retrieved from <https://blogs.worldbank.org/opendata/covid-19-increasing-global-inequality>

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