FINANCIAL STABILITY REPORT

2022

FINANCIAL STABILITY COORDINATION COUNCIL

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December 2022

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LIST OF ACRONYMS, ABBREVIATIONS and SYMBOLS

AEs	-	Advanced Economies
ASEAN	-	Association of Southeast Asian Nations
BBC	-	British Broadcasting Corporation
BESS	-	Battery Energy Storage System
BIS	-	Bank for International Settlements
CAR	-	Capital Adequacy Ratio
COP	-	Conference of the Parties
COVID-19	-	Coronavirus disease
CPI	-	Consumer Price Index
DOE	-	Department of Energy
DOF	-	Department of Finance
EIA	-	Energy Information Administration
EMDEs	-	Emerging Markets and Developing Economies
EMs	-	Emerging Markets
EU	-	European Union
FCY	-	Foreign Currency
FDI	-	Foreign Direct Investment
Fed	-	Federal Reserve System
FIs	-	Financial Institutions
FIES	-	Family Income and Expenditure Survey
FSB	-	Financial Stability Board
FSCC	-	Financial Stability Coordination Council
FSR	-	Financial Stability Report
GDP	-	Gross Domestic Product
GFC	-	Global Financial Crisis
GS	-	Government Securities
IMF	-	International Monetary Fund
IO	-	Input-Output
LCY	-	Local Currency
MOPS	-	Mean of Platts Singapore
MTM	-	Mark-to-Market
NCR	-	National Capital Region
NFCs	-	Non-financial Corporations
NYMEX	-	New York Mercantile Exchange
OPEC+	-	Organization of the Petroleum Exporting Countries Plus
PDS	-	Philippine Dealing System
PH	-	Philippines
PHP	-	Philippine Peso
PMI	-	Purchasing Managers Index
PSA	-	Philippine Statistics Authority
PSE	-	Philippine Stock Exchange
RE	-	Renewable Energy
SIFIs	-	Systemically Important Financial Institutions
SOEs	-	Small Open Economies
STEO	-	Short-Term Energy Outlook
SWIFT	-	Society for Worldwide Interbank Financial Telecommunications

SWS	-	Social Weather Stations
UN	-	United Nations
US	-	United States
USD	-	US Dollar
VUCA	-	Volatility, Uncertainty, Complexity, and Ambiguity
WFH	-	Work from Home
WTI	-	West Texas Intermediate
YoY	-	Year-on-year
YTD	-	Year-to-date

MESSAGE FROM THE FSCC CHAIRMAN AND BSP GOVERNOR

MESSAGE FROM THE FSCC CHAIRMAN and BSP GOVERNOR

This year has been challenging on several fronts. The decision of Russia to move into Ukraine in late February introduced volatility to global oil prices which were already rising since mid-2020. This gave fuel to inflation, and in many jurisdictions, the result has been inflation rates that were at their highest in decades. Central banks then responded by raising policy rates, but the persistently high inflation rates also meant rather sharp increases in interest rates.

While the prospects for world growth have already been tempered for 2022, the Philippines has outperformed market expectations. With a strong third quarter growth of 7.6 percent year-on-year (YoY), the country now is well-positioned to meet its growth targets for the year. There is no room for complacency, however. We have to appreciate what has been driving our growth momentum thus far, and then assess where and how global conditions may affect us, at least over the near term.

Viewing the underlying interlinkages, both within our economy and across jurisdictions, is the hallmark of the work of the Financial Stability Coordination Council (FSCC) on managing systemic risks. The task is not to forecast the single most likely outcome into the future. Rather, we explore all reasonable scenarios and make a judgement of any appropriate intervention. This is pre-emptive action, made complex by the myriad of different possibilities of risk behaviors that learn from prior experience. This dynamism moves markets, but it also makes the analysis of non-stationary risky outcomes an added challenge.

The Council remains cautiously optimistic of the country's prospects but realistically grounded on the likelihood of change. With the former, consumption remains strong, the market is investing into durable equipment, and the banking system remains strong. With the latter, we are fully aware of the spillover effects of supply bottlenecks and tightening financial conditions in the advanced economies (AEs). That these spillovers create their own round of risks once they hit onshore is a particular challenge for smaller economies who are price-takers in the global market.

The mandate of the Council remains: to nurture the resilience of the financial system from disruptions. The current global market situation highlights the extent to which jurisdictions are interconnected. This is true on a cross-border basis, just as it is the case across stakeholders within any jurisdiction. Since we cannot pre-determine the outcomes from interactions that learn from and change with market conditions, the least acceptable outcome is for the authorities to be surprised. This is all the more reason why we should invest in the agenda of managing systemic risks. The ability of the financial system to continuously provide stakeholders with the needed products and services simply depends on how we have nurtured the system's resilience to periodic shock that is often amplified by the extent of interconnectedness among the stakeholders themselves.

FELIPE M. MEDALLA
FSCC Chairman and BSP Governor

EXECUTIVE SUMMARY

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The global economy continues to face supply bottlenecks and inflation has remained persistently high. The result is for monetary authorities to respond by raising their policy rate.

Raising policy rates helps temper inflation but it will come at the expense of weaker economic activity as the costs of doing business and debt servicing rise. That is the short version of the onshore trade-off. Across borders, as different jurisdictions respond to their own idiosyncratic risks, interest rate responses are more likely to be asynchronous versus one another. One then expects repricing and revaluation risks to coincide with the general rebalancing of risks.

That these are global concerns only emphasizes the central point – we live in a highly interconnected world that is defined by interconnected risks. Those risks beget new vulnerabilities, and these vulnerabilities create further uncertainties. Furthermore, these risks can – and do – cascade across the global economy, adding a further dimension.

All these matter to emerging markets (EMs) / small open economies (SOEs) which (1) take global prices as a given and (2) rely heavily on imports to fuel domestic activity. This presents a policy challenge because the EMs/SOEs have to address their onshore issues while keeping an eye on offshore issues that they would not directly influence.

The crux of our systemic risk assessment is that the market is going through a storm. By their very nature, there is considerable uncertainty with storms and the extent of damage they can cause. Some will face more benign conditions, while others will feel the full brunt. However, none of this is known in advance. The question then is how prepared a community is for more rains, and more rainy days.

A point to be made, though, is that different jurisdictions are facing this storm from different initial conditions. The third quarter Gross Domestic Product (GDP) growth data for the Philippines proves that recovery from Coronavirus disease (COVID-19) still has momentum, despite the drag globally imposed by the storm conditions. We do face high inflation from the "original sin" of supply bottlenecks and, likely, strong demand as well.

We need to address the systemic risk issues as they unfold today, but we also must think of how these actions affect us in the future.

1 OUR READING OF THE MARKETS

OUR READING OF THE MARKETS

Markets conditions continue to quickly unfold. The optimism in early 2021 that marked the path towards recovery out of Coronavirus disease (COVID-19) has been replaced in 2022 by present-day challenges and notable uncertainties moving forward.

That we are in the midst of systemic risks is no longer debatable. Like the COVID-induced pandemic, the dislocations are not insignificant. These have not yet elevated to the level of economic contractions but certainly the costs in the market and to consumers are palpable. Unlike COVID-19 though, there is clear convergence of the prognosis: the authorities will respond to high inflation with rising policy rates, but the persistence of high inflation and the policy response creates a lot of disruptions for economies, today and moving forward.

Raising policy rates help temper inflation but it may come at the expense of weaker economic activity as the costs of doing business and debt servicing rise. That is the short version of the trade-off onshore. One has to consider the cross-border issues as well. With different jurisdictions concerned with their own idiosyncratic risks, the interest rate response is more likely to be asynchronous versus one another. This will rebalance risk premiums and with changing interest rate differential as well as expectations, currency pairs will correspondingly adjust as well. These adjustments in foreign exchange rates create their own cascade of risk changes.

Taken together, growth will be at risk at higher rates, which will translate nonetheless to weaker currencies against the safe-haven USD. Portfolios will rebalance, creating a stronger demand for USD assets, weakening local currencies, and thus creating yet another round of interest rate-foreign exchange rate rebalancing.

Understandably, most analysts begin their assessment from the volatility in the global oil markets, as well as the immediate consequences from the Russia-Ukraine war. As we have pointed out before, global oil prices had been rising since 2020, and not just after February 2022. What the war in Ukraine instigated was volatility in the trend and, more importantly highlighting supply bottlenecks in oil and in other commodities.

All these matter to a small open economy (SOE) which (1) takes global prices and (2) relies heavily on imports to fuel domestic activity. With the former, the higher market yields create asset revaluation losses and increase debt servicing, particularly exposing firms which are not yet fully recovered from the revenue disruptions of COVID-19. This instigates market and credit risks.

For the latter, limitations on what can be imported create a direct risk to growth. In some jurisdictions, rationing of oil-related products has already begun, even with the winter months still ahead. High prices may be passed on to willing counterparties, but the non-availability of raw materials and intermediate goods ensures an economic slowdown.

In this release of the Financial Stability Report (FSR), we introduce a different approach. Rather than our usual discussion of thematic issues, we begin with a more predictable format. This is with the sole intention of highlighting the risks to and by the system that can have protracted effects on the economy i.e., the very definition of systemic risks as espoused by the seminal joint paper of the Financial Stability Board (FSB)-International Monetary Fund (IMF)-Bank for International Settlements (BIS) (2009).

We begin with a discussion of risks in the general markets, which can ultimately have consequences in the financial market. This covers our take of the key issues in the macroeconomy. For this FSR, this begins from the oil market and how it feeds into the bigger realm of the economy. Inflation is a concern. And since this should be assessed versus purchasing power, we cover the effects on households as well. Reverting to oil disruptions, we include a short discussion of its impact on the climate change agenda.

This section is capped by assessing how the disruptions can have a “face” beyond aggregates. This is done by sharing our calculation of our network model with a shock instigated by global oil market disruptions. Higher prices are disruptive on their own, but the more extreme disturbance is the possibility that supply may be disrupted. Since the network is defined by the actual business relationships between and among firms, this is effectively a stress test of who gets affected once the contracted oil imports do not materialize.

These segue to the risks in the financial system. Our focus is on the effects of rising interest rates, the most obvious of which is to raise the debt burden on borrowers. In the absence of a market for long-term funds, the practice of annually repricing term debt suggests that tighter market conditions will have far reaching effects.

What is important to keep top of mind is that the global rise in interest rates is largely referenced against the actions of the US Federal Reserve System (Fed). Other jurisdictions are also raising their policy rate, but it is the rise in the Fed Funds Rate that is the focus of market players. The effect is for pairwise currencies, particularly with the USD, to revalue towards the USD. This depreciation of the local currency (LCY), coupled with rising interest rates, fuels uncertainties.

What is not uncertain is that tighter market conditions will revalue downwards marketable securities and repriceable assets. Raising security

holdings was a trademark of the COVID-19 years, but the higher level of financial assets are now at risk of mark-to-market (MTM) losses. As rates continue to rise, such MTM losses likely rise as well.

Higher interest rates, though, are not simply an added cost but also a window for expectations. Tighter market conditions are phrased as a response to persistently high inflation, but they also run the increased risk of at least "recession like" conditions. This presents a time consistency dilemma: we take action to address today the pressures from inflation, but the policy tool may be impairing growth into the future.

Ultimately, the relevant question for a SOE is what can be done in these difficult times. We first start by reiterating the bigger challenges faced by monetary policy in SOEs. The interest rate actions consider local inflationary pressures while keeping an eye for cross-border cross-currency implications of the actions taken by advanced economies (AEs). The challenge for SOEs, though, is that we are price-takers in the global market and our actions have onshore i.e., cost of doing business and growth consequences as well.

Thus, calls have grown louder for non-monetary interventions to push and sustain growth. This will invariably require some further borrowings. The dilemma, however, is that fiscal space has been reduced when we responded to the needs from COVID-19. More importantly, ensuing borrowings will be subjected to the same tighter market conditions faced by the private sector.

This brings us back to the immense value of sustaining the growth momentum. However, it is this momentum that is at risk because of the tighter financial conditions that have spilled over from the advanced to the emerging markets. Unfortunately for the latter, we are price-taking economies. This complicates our policy agenda, even if there is global convergence of the issues at play.

2 GENERAL MARKET RISKS THAT WILL AFFECT THE FINANCIAL MARKET

CHAPTER 2

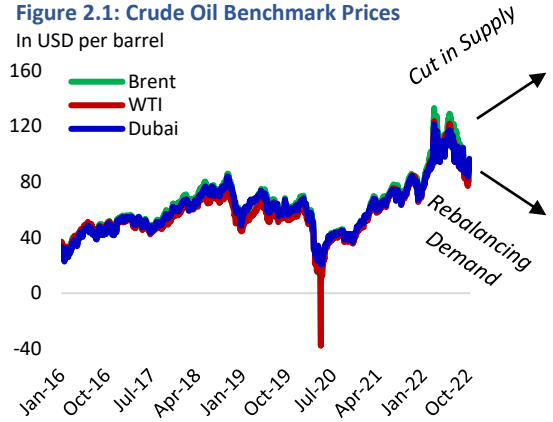
GENERAL MARKET RISKS THAT WILL AFFECT THE FINANCIAL MARKET

2022 has not turned out to be the year the global economy exits from the pandemic-induced recession. Instead, supply bottlenecks have not fully eased and appear to remain for the foreseeable future. High and persistent inflation has caused the growth outlook to be significantly adjusted downwards, with some discussion of a recession in advanced economies (AEs). In this section, we outline some of these key macroeconomic issues. Our focus is on the spillovers to us and how these will eventually be risks to the financial market.

2.1 Oil and escalating geo-political risks

The volatility in the global oil market shrouds a longer trend. When people assess what has happened thus far in 2022, the most common starting point is the volatility arising from the Russia-Ukraine war in February. However, one can immediately see in **Figure 2.1** that benchmark prices such as Brent and West Texas Intermediate (WTI) have been rising since 2020. This is significant when seen from the standpoint of the weak global demand for oil in 2020 as a result from the lockdowns and the pandemic.

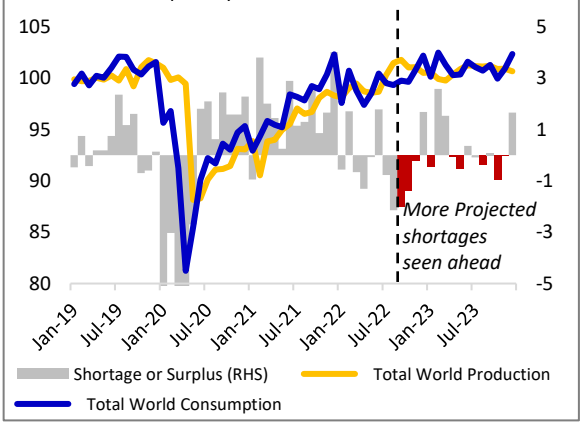
Figure 2.1: Crude Oil Benchmark Prices
In USD per barrel



Source: Refinitiv

Analysts have argued that there have been structural changes affecting oil supply rather than of volatile demand (**Figure 2.2**). Since the latter half of 2019, spending cuts and project delays were noted and expected to constrain supply. At the same time, Organization of the Petroleum Exporting Countries Plus (OPEC+) members were adjusting their targeted production levels but were generally not meeting the quotas. The race-to-lower-prices that defined the market in early 2020 had given way to sharply rising prices. This was further compounded by refineries that have closed or reduced their capacity since the onset of the pandemic. As jurisdictions recovered from the severe downturn, rising oil demand pushed prices higher. This created another imbalance, with the demand outpacing the output of crude oil and diesel refinery production.

Figure 2.2: Oil Production vs Consumption
In million barrels per day



Source: US Energy Information Administration (EIA) October 2022 Short-Term Energy Outlook (STEO), OSRM Calculation

The Russia-Ukraine war and escalating sanctions intensified supply fears. Europe and the West have sanctioned Russia for its actions in

Ukraine. By all standards, the severity of the sanctions would likely shut out Russian and Russia-related businesses from the rest of the world. It has turned out to be much more complicated and the war continues to linger. A big part of this is Russia's standing in the global oil and natural gas markets. Russia has limited or shut down supplies on westward gas pipelines and rerouted oil supplies eastward.[1] Gas supplies to Europe have been significantly reduced, underscoring the threat of a shortage of heating oil over the winter months, and increasing the possibility of a recession. In the meantime, Russia has been very vocal in redirecting its sales more towards China and India, reportedly at a discount from global prices. This is seen as sustaining revenues that would counteract the sanctions imposed by the West.

The market remains volatile. Oil prices have fallen from their peak levels soon after Russia's incursion into Ukraine. However, over the past three months, prices have swung significantly. For the benchmark Brent crude and WTI, prices dropped from August 29 to September 26 by 19.5 percent and 20.9 percent, respectively. And just as we were nearing the end-2021 prices, both have risen since September 26 by 14.6 percent and 15.6 percent respectively as of October 28. Such sharp movements within short periods highlight the many factors that can quickly reverse global prices.

At this point, the prognosis is for two polar scenarios. The recent upward trend in prices is driven by the decision of OPEC+ to cut supply by two million barrels per day. This is seen as a major rebuke of current global efforts to lower crude prices. However, it is not totally unexpected as higher world prices will generally benefit oil producers.

The bigger danger though is that higher oil prices may reflect a scarcity premium. This will continue to put cost-push pressure on inflation which will have deleterious effects. A bigger problem arises though if supply itself is cut-off, with the rationing capacity of prices put at risk. This is separate from any resolution to the supply distribution bottlenecks in many commodities. All these will sustain the current environment, with persistent high inflation matched with sustained uncertainties and a weaker global growth outlook. Analysts are drawing comparisons to the early 1970s when an embargo was enforced and rationing at our local gasoline stations became a necessity.

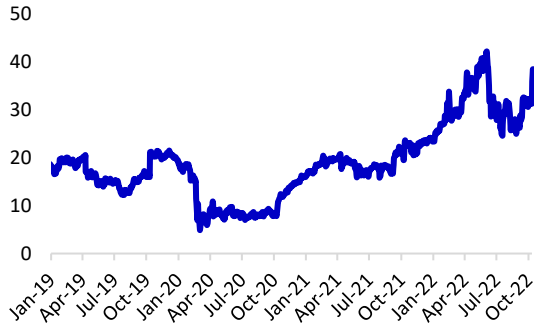
A weaker global outlook has already been signaled by the multilateral agencies. Regardless of whether a recession is officially declared, many jurisdictions anticipate recession-like conditions. Such a situation will erode demand and, theoretically, oil prices should fall. This may be expected to ease cost-push inflation, but in many ways, this is misleading if it comes at the cost of economic slowdown.

[1] Russia's Gazprom, the state-owned energy giant, ceased exporting gas to European countries through its pipeline, *Nord Stream 1*. Moreover, *Nord Stream 2* pipeline is still not operational because of the European sanctions.

The structure of the oil industry, though, does give producers market power. Our recent experience during the coronavirus disease (COVID-19) years suggest that it is not automatic for oil prices to fall. In the same breath, we saw prices falling in late 2019 as OPEC+ members competed among themselves, just as we have also recently seen prices fall sharply as market conditions and sentiments quickly change.

The issue is not limited to production, as the downstream segment depends on refining capacity. Global refining capacity has suffered due to underinvestment and significant losses were incurred during the pandemic. Since demand rebounded faster than supply, this has resulted to a larger premium for refining. This can be seen by looking at the so-called 3-2-1 crack spread.[2] As an indicator of retail fuel costs versus the base cost of crude oil, **Figure 2.3** shows how refined fuel is more expensive. This is the relevant cost for oil importing jurisdictions such as the Philippines. Along with high shipping costs, we have seen dramatically increased pump prices for end users.

Figure 2.3: New York Mercantile Exchange (NYMEX) 3-2-1 Crack Spread
In USD per barrel

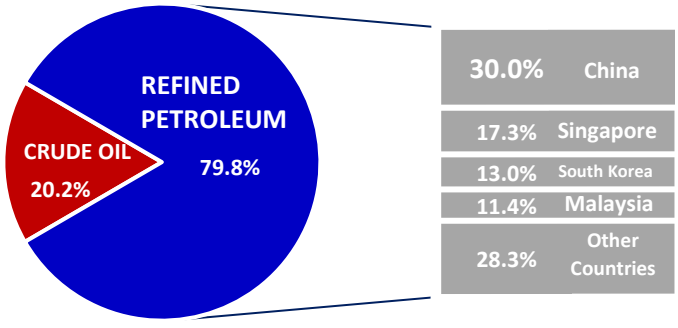


Source: NYMEX

There are issues less often mentioned in the downstream industry. Global price volatility then has a clear cost-push implication for the Philippines. But since we are a non-oil producing economy, we operate in the downstream segment of the global market.

It surprises many to know that 79.8 percent of our energy requirements is refined oil, and the balance of 20.2 percent is crude oil (**Figure 2.4**). Hence, in addition to the volatility in crude oil prices, we are arguably more vulnerable to refining margins from China, South Korea, and Singapore which collectively provide 60.3 percent of our refined oil imports. We can see the relevance of refining margins by looking at Mean of Platts Singapore (MOPS) prices, which has increased more than the benchmark WTI prices (**Figure 2.5**).

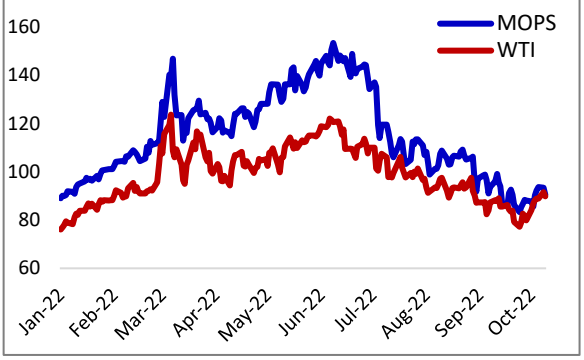
Figure 2.4: PH Oil-Petroleum Supply Sources, 2021
In percent



Source: Department of Energy (DOE)

[2] The crack spread adds the price of two (2) barrels of refined petroleum to one (1) barrel of diesel and deducts three (3) barrels of crude oil.

Figure 2.5: Oil Benchmarks and MOPS
In USD per barrel



Source: Refinitiv

This creates an interesting twist for the Philippines. While the Russia-Ukraine conflict has introduced volatility in global prices, we are equally concerned with Russia's sale of crude oil to China. China's economic situation is thus not simply a question of how the world responds to the second largest economy. For us, this has a bearing on our ability to source refined petroleum from China.

This is so because the Philippines has only one refinery whose capacity would not be enough to service the entire country. We also find that 94 percent of the monetary investments in the industry is attributable to 1.5 percent of the total market players (i.e., 337 out of 21,786). This small proportion are the market players who import, operate terminals, and distribute oil in bulk (DOE, n.d.). The volatility in the oil market is not only is an inconvenience for consumers at the gasoline station. Instead, it has major effects on production and logistics. Oil, gasoline, and diesel not only drive cars, but also drive economies.

There are financial market implications which we discuss in the following chapters. We also consider that the world's reliance on fossil fuel has consequences on the climate change initiative. The effect on the real economy, on the other hand, warrants our further discussion, which follows.

2.2. Macroeconomic effects of global oil volatility

COVID-19 disrupted global supply chains which have not yet fully recovered. As the lockdowns cut off cross-border activity, the expectation was that commerce and travel would normalize with the easing of the previous restrictions. This normalization is on its way but returning to the pre-pandemic situation has not yet been achieved. It is a fair question to ask if the global economy will want to get back to the prior value chains, as the suggestion to shorten the value chains and revert to "onshoring" arrangements has become louder. In addition, the dynamics across socio-economic groups have likewise changed because of COVID-19 that calls for defining the "new normal" has become standard.

Table 2.1: Expected Delay for Freight Transport from Selected US Ports
In days

Port Location	Week of 26 Sep	Week of 03 Oct	Week of 10 Oct
Houston	22	24	39
Tampa	18	18	20
Baltimore	14	9	12
Oakland	3	11	10
Savannah	9	19	9
Tacoma	5	6	8
New York	8	4	6
Norfolk	5	8	4

Source: GoComet, Data as of 17 October 2022

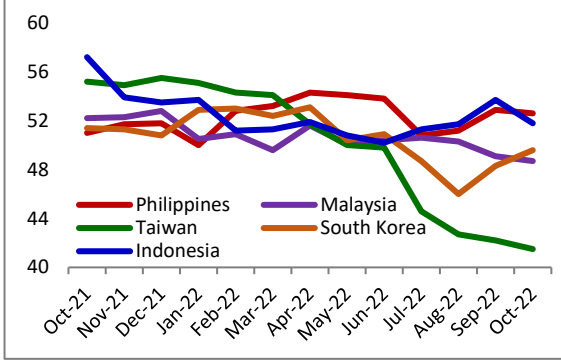
To date, ports in the US remain congested, with shipments from the largest port located in Houston expected to arrive after a lengthy 39 days (**Table 2.1**). This is a longer transmit than the eight days that was the average in 2021. Several ports such as the ones in Savannah, Houston, and Oakland have been actively looking for solutions – but still unable – to address vessel backlogs. The issue is not just about

the demand for vessels, but also fundamental changes in the labor market as summarized by the label "the great resignation."

On transatlantic shipments, delays have become more manageable in the second half of 2022 only because of weakening global demand and cancellations. Shipping rates have since dropped by around 75 percent since last year (Paris, 2022). However, labor strikes in Europe still affect ports in the US Eastern hemisphere, offsetting cargo flow improvements in the Western US (Abadilla, 2022). Thus, US ports are still congested due to a glut in inventories, which is a concern with global outlook and demand dimming.

China's zero-COVID-19 policy has also significantly disrupted world supply chains. The strict measure was meant to stop the community spread of the virus. In the process, it has had the unintended effect of halting production activity, affecting company operations in counterpart countries as well. With Asia relying on China's exports, a regional decline in factory activity was observed for October (**Figure 2.6)**. Moreover, firms in the technology industry which would import from China faced supply difficulties. Semiconductor production dropped 24.7 percent in August, the largest decline since 1997. With China's exports still recovering from weeks of lower production activity, the congestion of ports in many parts of the world is expected to persist through 2023. Rather supply catching up, this view envisions a fall in demand (following an expected global slowdown) as the equalizer. To achieve the pre-pandemic global transit times, maritime transport has to decline to between 6 and 6.5 days, matching the figures from 2016 to 2019 (Komaromi, Liu, and Cerdeiro, 2022).

Figure 2.6: Manufacturing Purchasing Managers Index (PMI) of Asian Countries



Source: CEIC

These supply chain disruptions matter to the Philippines. This is so because domestic activity relies on what and how much can be imported. This can be validated by looking at our imports, where the largest component is Raw Materials and Intermediate Goods (**Table 2.2**). This highlights the absence of domestic substitutes and whatever is imported gets absorbed into domestic activity, with Manufacturing being the largest sector. Thus, if the pace and content of our imports are disrupted, this will have onshore effects. With China as a significant trading partner of the Philippines (**Table 2.3**), their economic situation also has direct implications on us. Telecommunications and Technology industries face the most vulnerability due to supply bottlenecks following the fall in China's exports.

These effects are evident in rising consumer prices. The Consumer Price Index (CPI) began rising sharply month-on-month at the onset of 2022. By April, YoY inflation hit 4.9 percent (**Figure 2.7**), breaching the upper bound of the target range of 2-4 percent. With global markets in turmoil, year-on-

Table 2.2: Philippine Imports by Major Type of Goods
In USD millions, For the Period January 2022 to October 2022

Type of Goods	October 2022	January 2022 – October 2022
1. Capital Goods	**2,881.65**	**31,760.04**
A) Telecommunication Equipment and Electrical Machinery	1,563.32	15,797.50
B) Power Generating and Specialized Machines	509.11	6,056.77
C) Others	809.22	9,905.77
2. Raw Materials and Intermediate Goods	**4,256.21**	**44,732.70**
A) Unprocessed Raw Materials	577.21	4,986.07
B) Semi-processed Raw Materials	3,679.00	39,746.63
i) Manufactured Goods (*Iron, Steel, Metal Products, Non-metallic mineral manufactures, paper, fabrics, etc.)*	*1,095.34*	*13,462.83*
ii) Chemicals	*1,094.31*	*12,129.16*
iii) Materials/Accessories for the manufacture of Iron ore	*1,129.06*	*10,271.31*
iv) Others	*360.29*	*3,883.33*
3. Mineral Fuels, Lubricants, and Related Materials	**1,884.29**	**20,341.61**
4. Consumer Goods	**1,893.21**	**18,480.30**
A) Durable	903.56	8,729.90
i) Passenger cars and motorized cycle	*505.18*	*4,505.73*
ii) Others	*398.38*	*4,224.17*
B) Non-Durable	989.65	9,750.41
• Food and live animals chiefly for food (*Dairy Products, Fish, Rice, Fruits and Vegetables, etc.*)	*880.32*	*8,833.40*
ii) Others	*109.33*	*917.01*
5. Special Transactions	**86.80**	**679.46**
Total Imports	**11,002.17**	**115,994.11**

Source: Philippine Statistics Authority (PSA)

Table 2.3: Share of Philippine Imports by Country
In percent

Country	October 2022	January 2022 – October 2022
China	20.2	20.1
Indonesia	11.5	9.4
Japan	9.2	9.1
South Korea	8.4	9.4
Singapore	7.0	6.4
United States of America	5.4	5.4
Thailand	5.2	6.1
Malaysia	4.8	5.0
Taiwan	4.5	4.7
Vietnam	2.9	3.3
Others	21.0	21.0

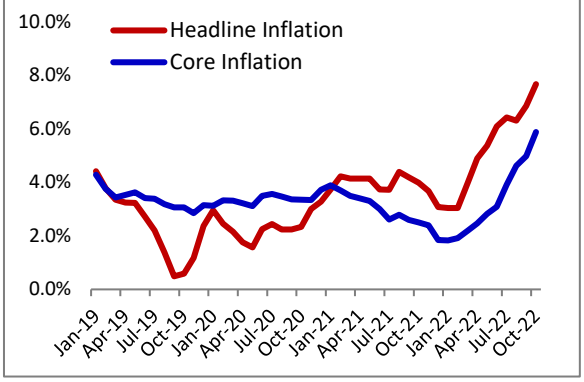
Source: PSA

year (YoY) inflation has continued to rise. The November YoY rate of 8.0 percent is the highest in 14 years. Even if we use alternative measures of price level changes (**Figure 2.8**), we can see the clear upward trend. Analysts believe that this upward trajectory will continue into 2023.

… with energy-related products prominently showing price increases. The effect of oil price volatility is very clear with headline inflation moving quickly from 3.0 percent in January 2022 to 8.0 percent in November (**Figure 2.9**). This is evident in transportation costs as well as electricity, gas and fuels.

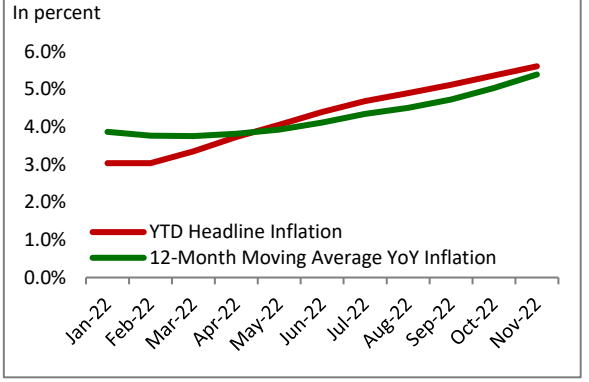
Rising transportation costs are directly transmitted to the public through passenger fares. We see a significant increase in the second half of 2022 and petitions for both wage and transport fare increases have been filed. Year-to-end-November oil price increases were at 29.90 PHP per liter for diesel, PHP25.20 for kerosene, and PHP16.90 for gasoline (DOE, 2022). These figures are off their peak values since already net out the price rollbacks that have been put into effect at times during the period.

Figure 2.7: PH Headline and Core Inflation
In percent



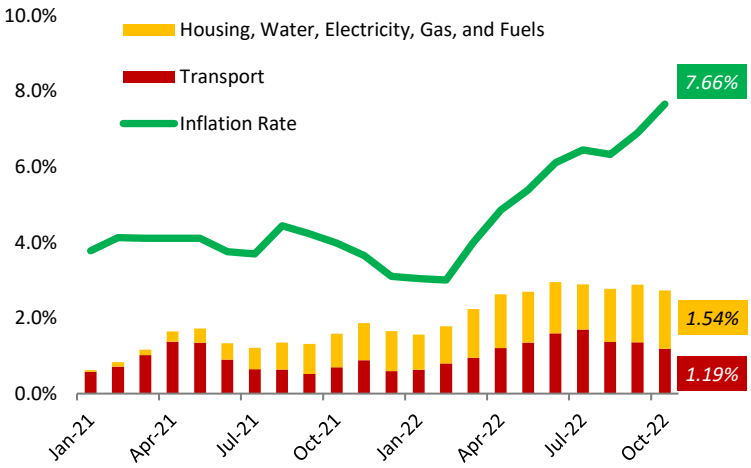
Source: PSA

Figure 2.8: PH Year-to-Date (YTD) vs. 12-Month Moving Average YoY Inflation
In percent



Source: PSA

Figure 2.9: Absolute Contribution of Commodity Groups to Headline Inflation
In percent



Source: PSA, OSRM Calculation

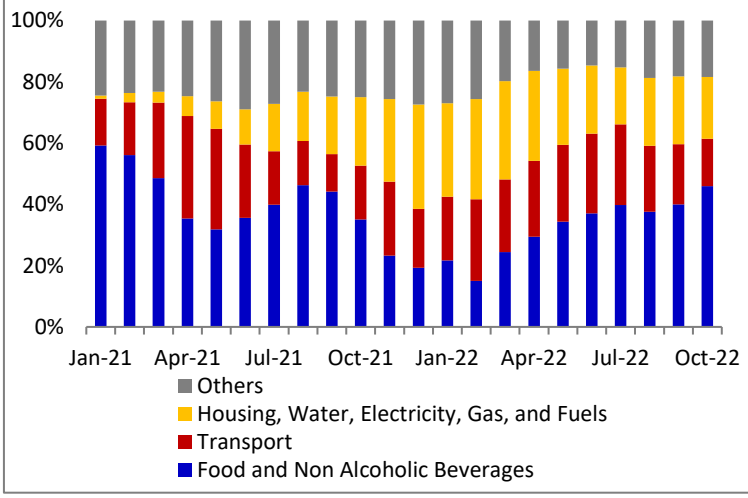
While rising pump prices are an obvious cost to consumers, the extent of the burden can also be assessed relative to the value of time. Since gasoline prices typically change at midnight on Mondays and these changes – upwards or downwards – are announced the weekend before, it is interesting to see consumer behavior for an announced price increase. With cars holding gas tanks between 40 liters to 70 liters, a significant five peso increase per liter of diesel amounts to an incremental cost between PHP200 to PHP350. What is notable is that car owners, presumably salaried workers, are willing to endure long lines (that can mean 30 minutes of wait) after office hours for the chance to save on the incremental cost.

This price sensitivity has likewise been used for arguing for an extension of work from home (WFH) arrangements. While COVID-19 restrictions have significantly eased, the higher cost of transportation has segments of society asking for doing their work remotely.

However, price pressures were not only due to oil. Food prices continue to be a significant driver of inflation, rising 10.03 percent YoY and 11.8 percent in the National Capital Region (NCR) where the bulk of economic activity is generated. The latest figures show that food accounts for nearly 47 percent of YoY inflation in November, significantly higher than the 15 percent in February (**Figure 2.10**).

Figure 2.10: Relative Contribution of Commodity Groups to Headline Inflation

In percent



Source: PSA, OSRM Calculation

This reflects a confluence of factors. The disruptions in global supply chains contribute via elevated freight costs and shipment delays. Global sources of fresh produce, condiments, and other food items also saw a decline in output due to inclement weather across regions. In addition, as global market uncertainty has risen, several jurisdictions have decided to limit their exportable commodities and allocate them instead for domestic use (Tan, 2022). These include sugar, palm oil, and poultry, products which the Philippines imports. Thus, the rise in prices reflects both cost-push effects and some scarcity premium as well.

There are also other facets of inflation that are less discussed. While the focus has been on headline inflation because of food and energy prices, what is evident from **Figure 2.7** is that core inflation itself has also sharply risen. The increase from 1.8 percent in January to 6.5 percent as of November is nearly at pace with the increase of 5.0 percentage points in headline inflation over the same period. This only validates that inflation pressures have become embedded in the consumer basket.

One challenge is that the shelves in retail stores – particularly in groceries – have yet to fully recover to their pre-COVID-19 state. Many items that consumers have been accustomed to are either not available or only intermittently available. This has forced consumers to change consumption behaviors or rely on substitutes. One can argue that the supply bottlenecks,

delayed shipping, and changed product use by consumers are not likely covered by the current consumer price index (CPI) basket which has a 2018 base year. The actual impact on inflation numbers, though, is unclear.

As manufacturers and distributors adjust to what is available, they appear to be sensitive to raising retail prices as well. Rather than provide a full pass-through of the higher costs, prices have been managed by providing noticeably smaller portions. This is particularly evident in fast food or consumer goods where the quantity or the size of the food portion can be readily adjusted. This adjustment would typically not be accounted for by the standard inflation metrics.

These disruptions are of the nature of systemic risks. These challenges in the oil and commodity markets have an adverse effect on financial markets (see Chapter **3.2**). As they stand, they are already disrupting the economy and these disruptions will escalate with the financial market impact. In this context, they fall squarely under the classification of systemic risks.

The disruptions have the effect of dampening the outlook for the global market. Multilateral agencies have already significantly revised their projections downwards. This covers the full year 2022 growth estimate as compared to early in the year forecasts, and an equally significant slowdown in 2023. There is talk of a recession unfolding in 2023 in advanced economies (AEs), but the point really is that, even if one is not officially declared, the market situation will be difficult and "recession-like."

For emerging, open, price-taking economies such as the Philippines, the spillover effects are inevitable. Weaker global activity will dampen growth in the rest of the world. While some show greater resilience than others, growth rates are still expected to slow. This can have onshore employment implications, depending on which and how domestic industries interact with the rest of the world. Any adverse impact on the labor market will erode purchasing power, which will be another shock to already disrupted markets.

… although the impact on consumers is unlikely to be homogenous. As disruptive high inflation rates can be, their impact is likely to be more pronounced for those in the lower income deciles. As can be seen from **Table 2.4**, families in the lowest three deciles spend 20 percentage points more on food and non-alcoholic beverages than the full CPI basket. This literally shows that a relatively larger portion is spent on the basic requirement of food for lower income groups. It must also suggest that the difference in food allocation is much larger than 20 percentage points between the upper seven deciles and the bottom three deciles.

Table 2.4: Weights by Commodity Group for Calculating Consumer Price Index
In percent

Commodity Group	CPI Weights: Full Basket (Base 2018)	CPI Weights: Full Basket (Base 2012)	CPI Weights: Bottom 30% Income Households (Base 2012)
Food and Non-Alcoholic Beverages	37.7	38.3	58.3
Housing, Water, Electricity, Gas, and Other Fuels	21.4	22.0	15.4
Restaurants and Accommodation Services	9.6	12.6	9.8
Transport	9.0	8.1	4.8
Personal Care, Miscellaneous Goods, and Other Services*	4.5	*3.8*	*4.1*
Health	2.9	3.9	1.8
Education Services	2.0	3.3	1.0
Furnishings and Household Equipment	3.2	3.0	1.9
Clothing and Footwear	3.1	2.9	2.6
Information and Communication	3.4	2.9	1.2
Alcoholic Beverages and Tobacco	2.2	1.6	2.5
Recreation, Sports, and Culture	1.0	1.4	0.7
Financial Services	0.0		

*Part of Restaurant Commodity Group for Base 2012
Source: PSA

2.3. Impact on households

Systemic risks are ultimately about the effect on different constituents. The point from the preceding section was that impact analysis will depend on the distribution of the effects i.e., on understanding the varied circumstances of the different constituents who get affected. With inflation and purchasing power high on the list of disruptors, looking at household incomes is necessary.

Employment figures provide us a direct view. Labor data suggests that employment has recovered from coronavirus disease (COVID-19) dislocations. At its peak during COVID-19, the unemployment rate rose to 17.6 percent, which translated to 7.2 million individuals out of the 41.1 million who were classified as being in the labor force at that time (PSA, 2021). Shifting from quarterly to monthly data releases, the October 2022 unemployment rate has fallen to 4.5 percent, equivalent to 2.2 million individuals (PSA, 2022). This is a notable improvement, not just relative to peak unemployment but more so when compared to the 6.4 percent unemployment rate at the beginning of the year.

Granular data shows, however, that the recent employment gains may not necessarily translate to a strong jump in purchasing power. Since the initial job destruction from COVID-19 came from informal and "gig economy" activities, it should not surprise that the first line of employment recovery covers those initially displaced. Between January to October 2022, 39 percent of the incremental employment were elementary occupations

(**Table 2.5**).[3] Professionals saw a modest increase while the number of those working as managers, technicians and associate professionals declined.

Table 2.5: Employment by occupation

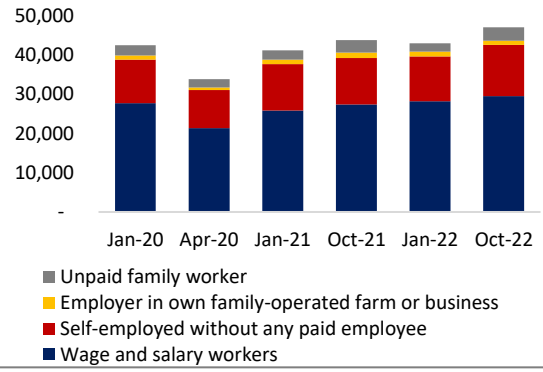
OCCUPATION	Number of employed ('000)					
	Jan-20	Apr-20	Jan-21	Oct-21	Jan-22	Oct-22
Managers	3,980	3,136	3,423	3,649	3,309	2,056
Professionals	2,457	1,969	2,369	2,422	2,324	2,458
Technicians and associate professionals	1,611	1,318	1,568	1,803	1,810	1,711
Clerical support workers	2,845	2,167	2,630	2,987	3,071	3,439
Service and sales workers	8,465	6,235	8,164	8,736	9,015	10,883
Skilled agricultural, forestry, and fishery workers	4,855	4,762	5,460	5,445	4,821	5,556
Craft and related trades workers	3,256	2,167	2,970	3,088	3,267	3,538
Plant and machine operators and assemblers	3,448	2,621	3,298	3,075	3,401	3,881
Elementary occupations	11,523	9,382	11,276	12,527	1,915	3,509
Armed forces occupations	102	73	89	88	85	77
Total employed	**42,543**	**33,830**	**41,248**	**43,822**	**43,018**	**47,106**

Source: PSA

The number of wage and salary workers rose, although a larger increase can be observed among those who were self-employed and those who performed unpaid work in family-owned farms or businesses (**Figure 2.11**). Thus, a significant portion of the newly employed workers are those whose incomes rely on the favorable performance of the economy rather than regular wages and salaries.

Figure 2.11: Employment by Class of Worker

In thousands



Source: PSA

More people also worked longer hours (more than 48 hours). This is typically interpreted as wanting additional income from those already fully employed. Despite this, however, the average number of hours worked per week decreased from 41.8 hours in January to 40.2 hours in October (**Table 2.6**). This is because most of the jobs created during the period were part-time in nature.

Table 2.6: Hours worked

	Number of employed ('000)	
	Jan-22	Oct-22
Less than 40 hours	13,041	15,966
Worked 40 hours and over	29,762	30,723
With a job, not at work	214	418
Total employed	**43,018**	**47,106**
Mean hours worked in one week	**41.8**	**40.2**

Source: PSA

[3] Elementary occupations involve the performance of simple and routine tasks which may require the use of hand-held tools and considerable physical effort. These include office cleaners, freight handlers, agricultural, forestry and fishery laborers, laborers in mining, construction, manufacturing and transport, kitchen assistants, street vendors and street service workers.

Average household income fell in 2021. What these data suggest then is that while there was observable job growth, it may not have translated to substantial improvements in household incomes. The implications of this are further aggravated by the fact that household incomes had already been strained during the pandemic.

Based on the preliminary results of the 2021 Family Income and Expenditure Survey (FIES), the average annual family income was estimated at PHP307,190 in 2021, 2.0 percent lower than PHP313,350 in 2018 (PSA, 2022). When adjusted for inflation, the decline would be larger, with 2021 average family earnings estimated at just PHP282,080, equivalent to a 10 percent drop when compared to the 2018 level. Notably though, the average income of the first five deciles at the national level slightly increased. This may possibly reflect the financial assistance extended by the National Government to the most vulnerable during COVID-19.

The decline in earnings was most felt in the National Capital Region (NCR) where average income fell 9.2 percent. Unlike the national results, all deciles, except the first, experienced income losses. This is not unexpected, as the region accounts for a significant portion of the total COVID-19 cases and is therefore likely to feel the worst impact from the pandemic restrictions.

Whereas family income changes differed across deciles, expenditure consistently fell across all income deciles. Compared to the drop in average earnings, average household spending saw a larger decrease of 4.1 percent. The decline was also most pronounced in the capital region where average family spending fell 12.8 percent.

While the decline in average spending was generally smaller for lower income deciles, it should be noted that basic necessities make up a larger share of their consumption compared to higher income groups. Spending on food, for instance, comprises a higher percentage of the lower-income households' total consumption. In the first half of 2021, food accounted for 58.2 percent of the total expenditure of families in the bottom 20 percent versus 31.9 percent in the upper 20 percent income group (PSA, 2022).[4]

Thus, while the decrease in expenditure among higher income groups could have resulted from less spending on recreation or luxuries, those in the lower deciles would not have such buffer. Instead, it would more likely mean a reduction in spending on basic needs, translating to a greater impact on household welfare.

All things considered, the welfare loss from COVID-19 could be summarized by one detail: the pandemic has pushed more Filipinos families below the per capita food threshold. Subsistence incidence, or the proportion of families whose income is not enough to meet even just the basic food

[4] Based on the Preliminary Results of the 2021 FIES Visit 1

needs, rose to 3.9 percent in 2021 from 3.4 percent in 2018 (**Table 2.7**). Meanwhile, poverty incidence among families went up to 13.2 percent from 12.1 percent previously.

Table 2.7: Poverty and subsistence incidence among Filipino families

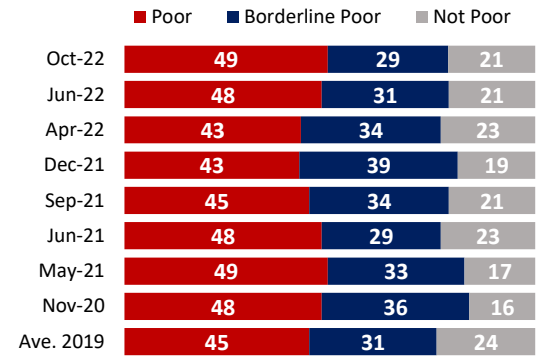
	2015	2018	2021
Poverty incidence among families (in percent)	18.0	12.1	13.2
Magnitude of poor families (in millions)	4.1	3.0	3.5
Subsistence incidence among families (in percent)	6.5	3.4	3.9
Magnitude of subsistence poor families (in millions)	1.5	0.8	1.0

Source: Philippine Statistics Authority (PSA)

Surveys privately conducted by the Social Weather Stations (SWS) (**Figure 2.12**) provide further insights. We abstract from the actual figures, recognizing that these are based on a survey responder's own subjective assessment. Our take from these, however, is that a fair number of respondents rate themselves are "poor," and roughly three out of four will classify themselves as either "borderline poor" or "poor."

Figure 2.12: Self-rated Poverty in the PH

Percent of Total



Source: SWS

What these highlight is the need to sustain income growth, more so among families which were hardest hit by the pandemic. The improvements in 2021 are much welcomed, but the economy in 2022 is again facing a new round of systemic risk. Oil and commodity market disruptions are already eroding purchasing power and can undermine the country's efforts towards full recovery.

2.4. Climate security

The ongoing uncertainties in the global oil market will affect the climate change agenda. High crude oil prices and the possibility of supply disruptions make the case for a more urgent shift towards renewable energy (RE). However, RE has not developed to the level of everyday retail use, and in many instances, the infrastructure for developing RE extraction and storage are at their early stages of being laid out. Energy security may be at risk if the transition is pushed too aggressively, and the financial market impact would not be trivial. This creates a natural trade-off between the socially-expensive-but-more-available fossil fuels versus the policy-preferred-but-not-yet-fully-developed alternatives.

The good news is that transition to carbon neutrality is underway. Evidence of the green movement can be seen throughout the globe. In Denmark, all new oil and gas explorations have been terminated. In

addition, new licenses will not be awarded as part of the master plan to end their oil production in the North Sea. There is also some discussion whether the last set of awarded licenses will themselves be revoked (Danish Ministry of Climate, Energy and Utilities, 2020). This is of consequence because the Nordic country is the European Union (EU)'s largest oil producer.

In Australia, the share of renewable sources in energy consumption has doubled over the last decade (Australia Department of Climate Change, Energy, the Environment and Water, 2022). In the US, electric vehicles and hybrids have surpassed 10 percent of all light-duty vehicle sales (U.S. Energy Information Administration, 2022).

Yet current emission trends suggest that the collective target is likely to be missed. The Conference of the Parties (COP27) of the United Nations (UN) Framework Convention on Climate Change was hosted in the green city of Sharm El-Sheikh, Egypt, in November. First on the agenda is transforming pledges into encompassing and timely implementation. This comes after reports that the world is increasingly likely to exceed the 1.5 degrees Celsius warming limit. Scientists assert that overshooting this threshold will cause catastrophic weather events to occur more prevalently. For instance, a heatwave with a 2.0 percent chance of occurring in any of the pre-industrial years, can at present occur 4.8 times more frequently. Moreover, should the global warming limit be exceeded, a similar heatwave is said to happen 13.9 times more likely (Clarke, Otto, Stuart-Smith, & Harrington, 2022).

The long-standing oil crisis remains to be a major roadblock. As discussed extensively in previous sections, the flux in the global oil market exerts pressure on the rest of the world – governments, corporates, and even households. Unsurprisingly, the impact extends to the climate agenda. The path from fossil fuels to renewables is a tightrope on which energy security hangs.

One side is the renewables market, whose technologies have yet to trickle down to the commercial level. The costs to put up base generation facilities (e.g., solar panels) are still relatively high. Additional expenses are to be incurred to install corresponding storage facilities (i.e., battery energy storage systems or BESS), which are critical to achieving stability given the intermittent nature of most renewables.

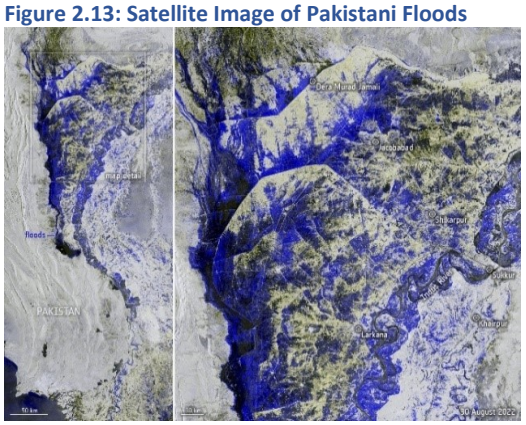
The other side would be the oil and gas markets. The global reliance on this industry remains deep-rooted despite its scientifically validated environmental consequences. Efforts to accelerate the shift from fossil fuels involve the gradual phase-out of less clean forms of the fuel. For instance, the US Environmental Protection Agency in 2006 introduced a rule that substantially raised the standards for diesel products. While the move is a step in the direction of a greener planet, it also elevated production costs translating to an increase in prices. This emphasizes that securing long-term environmental health entails tradeoffs to be paid in the present.

Geopolitical developments aggravate the energy situation. The transition has been challenging enough without geopolitical tension. The war between two fossil fuel exporters had tipped the situation further into crisis. In response to the sanctions imposed by the West, Russia has indicated that it will halt its supply of natural gas to Europe. With the winter coming, energy rationing has become more imminent. In Germany, this has prompted the parliament to order the reactivation of previously shut down coal power plants, a backstep from climate goals (Coleman, 2022). This situation illustrates the tug-of-war between fossil fuels and renewables, especially when energy security becomes uncertain.

With all these, transition becomes increasing costly. McKinsey & Company estimated the world's transition costs until 2050 to be over 9 trillion USD per year (Krishnan, 2022). This was before global interest rates rose sharply. The obvious follow up question is how this transition cost will be funded. With absolute standards set and different countries facing different initial conditions, the journey towards a common goal is bound to be disproportionate across jurisdictions. Thus, global cooperation appears to be the only way forward, including the means to finance each jurisdiction's own journey.

Amidst the challenges, manifestations of physical risks unfailingly serve as reminders to press on with the transition. There are still voices of dissent on climate change. Yet, scorching heat has tormented regions in the US, Africa, Asia, and Europe, with many regions reaching temperatures higher than ever recorded. Floods have been more widespread. The South Asian country of Pakistan suffered heat waves in April and then found itself experiencing floods in June, caused by torrential rains which have been observed to be ten times stronger than usual. This monsoon on steroids, as referred to by UN Secretary-General Guterres, has put about a third of the nation underwater based on a satellite image captured by the European Space Agency (**Figure 2.13**).

Figure 2.13: Satellite Image of Pakistani Floods



Note: The blue to black colors show where the land is submerged.
Source: European Space Agency

The stakes are higher for countries like the Philippines. The archipelagic nation is responsible for only a miniscule share in global greenhouse gas emissions while being one of the most vulnerable to the impacts of extreme weather events. The latest edition of Germanwatch's Climate Risk Index ranked the Philippines as the 4th most susceptible country to climate disasters, next to Puerto Rico, Myanmar, and Haiti (Eckstein, Künzel, & Schäfer, 2021). Pakistan, which experienced both extreme heat and flooding this year, is ranked 8th on the list (**Table 2.8**). This raises the discussion on compensation for loss and damage, otherwise known as climate justice. Most nations on the list bear the brunt of nature's wrath without having a material role in the industrial revolution, the period said

Table 2.8: Climate Risk Index

CRI	Country
1	Puerto Rico
2	Myanmar
3	Haiti
4	Philippines
5	Mozambique
6	The Bahamas
7	Bangladesh
8	Pakistan
9	Thailand
10	Nepal

Source: Germanwatch

to be the onset of the current climate crisis. It is almost as if progress in some portions of the world has been achieved at the expense of others. The discourse on reparations formally resumed at COP27 as part of its official agenda.

Philippine authorities pave the way for the financial system to fulfill its critical role in a low-carbon economy. In February, the central bank released the Philippine Sustainable Finance Roadmap and Sustainable Finance Guiding Principles. While sustainable finance per se is a concept larger than climate goals, the publications highlight the criticality of transiting to low carbon energy utilization. Collectively, the two documents lay out the current sustainability landscape and provide direction on how to navigate forward.

2.5. A network view of our market: Concentration and contagion risks

The preceding sections – from oil and commodity market volatilities to growth, inflation, purchasing power, and climate change – argue that what we face is within the purview of systemic risks. Even without the discussion on financial markets (which we do in Section 4), the downside risks are already significant. Yet, what makes the evolving market condition systemic is that they are interlinked and the end effects for the system will be larger than taking the issues in silos.

Input-output linkages highlight the dependencies in the economy. Economics has long used the input-output (IO) table to reflect the interaction between industries. Although the latest IO table for the Philippines is that of 2018, it remains a useful guide to the structure and dependencies across industries (PSA, 2021).

The transactions table suggests that Manufacturing as well as Agriculture, Forestry and Fishery were two industries that provided the greatest output to the economy (measured nominally) while likewise having the largest intermediate demand (**Table 2.9**). This is material to our assessment of systemic risks because they are directly affected by the volatility in global oil markets and the supply bottlenecks in other commodities, respectively. Interestingly, Wholesale and Retail Trade, as well as Finance and Insurance activities, are likewise prominent in this list. These latter two economic industries would arguably depend on growth, which would be affected by the condition in the prior two industries.

The information is useful, but the risk analysis would be contained to industry-specific disruptions. Added insights would be generated by firm-level analysis, allowing for differentiation within an industry and for specific circumstances that may be relevant for the transmission of risks.

Table 2.9: Rank of Biggest Providers and Recipients based on the 2018 Input-Output Transaction Table

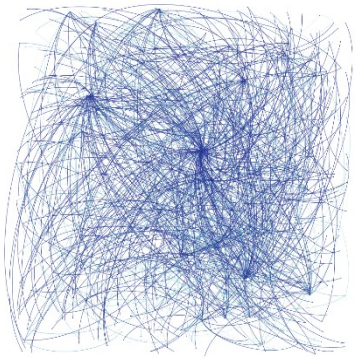
Rank	Biggest Provider of Output (Intermediate Consumption)	Biggest Recipient of Output (Intermediate Demand)
1	**Manufacturing**	**Manufacturing**
2	**Agriculture, forestry, and fishing**	Wholesale and retail trade; repair of motor vehicles and motorcycles
3	Construction	**Agriculture, forestry, and fishing**
4	Wholesale and retail trade; repair of motor vehicles and motorcycles	Financial and insurance activities
5	Financial and insurance activities	Professional and business services

Source: PSA, OSRM Calculation

Network models provide a more granular view of the linkages. Our solution to the above is to use network models. We can drill down and ask more specific questions about how the risks can be transmitted through the economy. For example, our dependency on importing crude and refined oil, at high prices, can be assessed in terms of the firms importing oil which are now exposed to price risk and/or may not be able to source their usual volumes due to supply constraints.

This exercise provides a view of the firms immediately affected and the succeeding rounds through which the shocks may cascade. This will highlight the channels of risk, providing more specific information at the firm level of who may be affected when usual business connections are impaired. A chart for an oil shock is presented in **Figure 2.14.**

Figure 2.14: Network of Oil Sector Connections

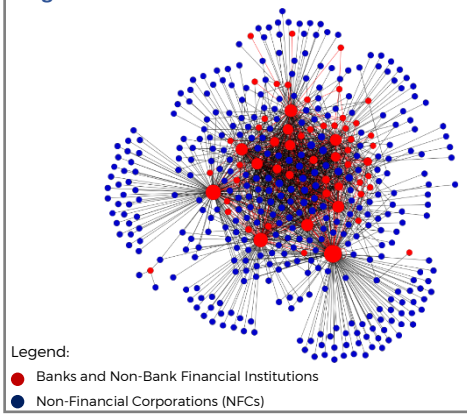


Source: Philippine Stock Exchange (PSE), OSRM Calculation

Energy security is critical to this – and any – economy. Network models provide a form of a stress test by informing of the channels of risk. For an economy that relies heavily on imports for its raw materials and intermediate goods, understanding these channels is an absolute necessity. When it comes to oil and being exclusively a player in the downstream segment of the market, this redounds to an issue of energy security, which cannot be compromised. And since these networks are built based on the business connections between firms, changing market conditions are likely going to modify some of the links from time to time. This suggests the need for continuous monitoring.

Given the structure of our economy, concentrations within the networks are expected. This point needs to be made to avoid unnecessary confusion. Some economic activities will naturally require significant capital as a start-up and as a going-concern. Not many have the risk appetite or the access to such capital. In this sense, conglomerates are welfare improving since they can provide products and services that would otherwise not be made available. The challenge then is to monitor concentration risk, and to devise market-consistent circuit-breakers, where possible.

Figure 2.15: Network Between Banks and NFCs



Source: BSP, OSRM Calculation, As of June 2022

As a result of the global financial crisis (GFC), emphasis was put on "ring fencing" financial institutions. This is one of the circuit-breakers that was put in place in the revised market architecture. Locally, we do not yet see the need for such, but the networks do help in identifying the contagion risk between non-financial corporations (NFCs) and financial institutions, particularly banks (**Figure 2.15**). Various scenarios can be tested to scope the frontier of possible system-level outcomes.

The banks are also interconnected with NFCs, which poses a contagion risk. A network model allows us to visualize the linkages at which there is a growing level of concern (**Figure 2.15**). The presence of linkages and the emergence of conglomerates make up for an interconnected system of NFCs, banks, and non-bank financial institutions, and are what drives the economy. However, this network also reveals that given shocks in the oil market, there will always be vulnerabilities. In a capital-reliant economy like this where the main driver is consumption however dependent on manufacturing and consequently on oil, the financial market is a natural support system.

3 FINANCIAL MARKET RISKS THAT WILL AFFECT THE GENERAL MARKET

CHAPTER 3

FINANCIAL MARKET RISKS THAT WILL AFFECT THE GENERAL MARKET

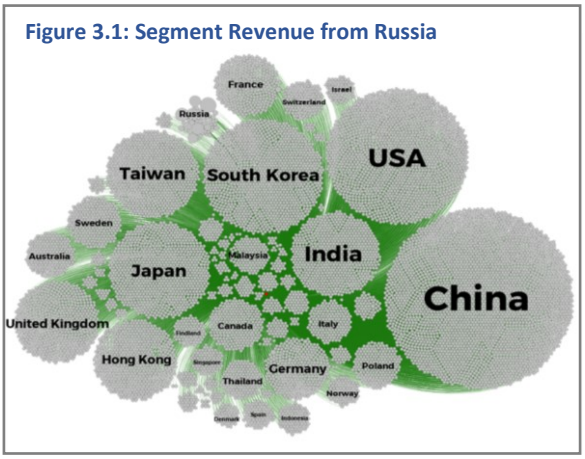
High and still rising inflation – triggered in part by oil – has led monetary authorities to significantly raise policy rates. This concern of bringing inflation under control appears to run the risk of weaker economic activity into the future. This puts us in a classic financial acceleration dilemma where vulnerabilities in the macroeconomy create financial market disruptions which can also spillback into the real economy. Understanding where systemic risks lie requires a closer look at the financial market.

3.1. Sanctions and credit risks

The sanctions imposed on Russia have significant financial implications. For Russian businesses operating outside Russia and for non-Russian firms doing business in Russia, the sanctions are meant to cut them off from the global economy. Russian banks were removed from Society for Worldwide Interbank Financial Telecommunications (SWIFT),[5] its USD630 billion Central Bank Reserves effectively frozen, and USD600 million worth of liquidity in US banks barred from being used as payment [British Broadcasting Corporation (BBC), 2022]. While Russia has since used its own system outside SWIFT, the lack of global use makes it difficult to deal with Russian businesses as counterparties. Only a few days after the incursion into Ukraine, the global rating agencies classified Russia at or near-default status.

The US Treasury has declared a Russian bond to be in technical default[6] which Russia has disputed. Nonetheless, when we reviewed the segment revenues of over 21,000 firms in Russia (**Figure 3.1**), the results showed that the impact on the rest of the world will itself not be insignificant.

Figure 3.1: Segment Revenue from Russia



Source: Company Financials, Refinitiv Eikon, OSRM Calculation

This creates a channel of risk that impacts many jurisdictions, including the Philippines. As we showed in Chapter 2, the Philippines depends on oil and coal imports, literally to fuel domestic activity. Any impairment anywhere in the supply chain will invariably have onshore implications. Rising global prices will be passed on, eventually to consumers, sustaining the inflation momentum. At the extreme, however, the unavailability of commodities can trigger disruptions in our domestic supply chains.

[5] SWIFT is a leading provider of messaging network services among banks and other financial institutions.
[6] Unlike regular defaults, this occurs when a specific covenant on the bond issuance is breached.

What and how extensive will the impact be on the domestic market depends on specific contracts and arrangements between businesses. At the most benign case, this will encourage consumers to search for substitutes or forego the product demand. Those who engage in online groceries experience this first-hand. At the other extreme, however, are business arrangements which can have "events of default" embedded into their contracts. Once triggered, cross default provisions in existing obligations can easily cascade and branch out into other defaults.

The advantage of using network models is that we can take a granular, if not longer-term view. What we see playing out today was captured by our epilogue in our 2021 Financial Stability Report (FSR).

> *"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" – FSR December 2021.*

3.2. The spillover effects of rising interest rates

The protracted disturbance in global oil prices – which takes us back to 2020 – has clearly affected the cost of doing business in the country. The effects may not be an immediate spike in risk but rather a slow-burn deterioration. The immediate concern now is the extent to which the sharp increase globally in policy rates in 2022 is likely to accelerate that slow burn.

3.2.1. From low-for-long to high-for-however-needed and the role of market expectations

Financial markets have experienced a sharp reversal over the past three years. After Coronavirus disease (COVID-19) extended the low-for-long era into lower-for-longer to boost economic prospects, 2022 has seen market yields rise significantly. But two added factors, though should be

considered. First, while most policy rates in advanced economies (AEs) moved towards the end of the first quarter, market yields started rising as early as fourth quarter of 2021 (**Figure 3.2**). This was well before the US Federal Reserve System (Fed) closed the debate between transitory or persistent (on inflation) by announcing in December its intention to raise the Fed Funds Rate. This leads us to the second point which is that movements in market yields is part policy rate transmission and part market expectation.

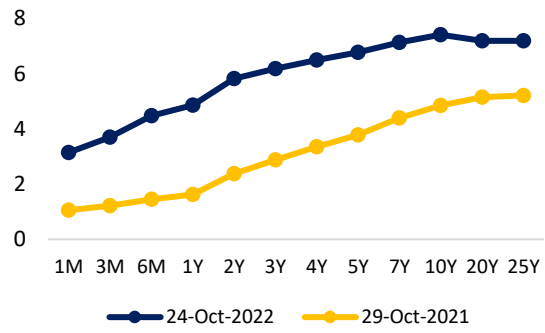
The latter point comes as no surprise since financial assets have a stream of expected future incomes that need to be translated into today's values using interest rates. Asset values rise with stronger expected future incomes and fall as interest rates rise. However, expectations and interest rate movements are not entirely independent of each other.

Appreciating this intertwined relationship is important for assessing the path ahead. We know from recent experience that falling market yields did not lead to rising outstanding loans from banks, most likely because of their risk-off[7] stance. For Foreign Direct Investment (FDI), we see bouts of U-shaped patterns, generally rising until peaking in December 2021 at USD 2.67 billion (**Figure 3.3a**).

In contrast, 2022 has seen market yields rise in most jurisdictions. Yet, portfolio funds have moved out of emerging markets (EMs) in general, including the Philippines. In **Figure 3.3b**, we see that both equities and fixed income markets were on the downtrend for 2022. This reflects how interconnected financial markets have become, as market yield is not absolute to a jurisdiction but is seen as relative to other portfolio alternatives.

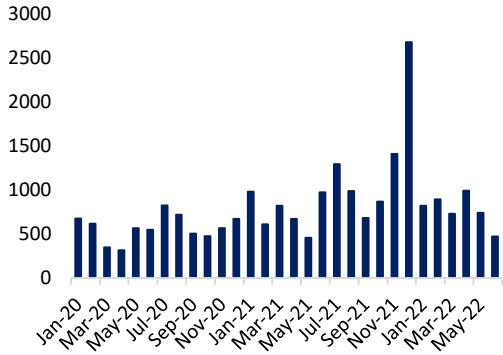
In effect, what we are seeing is a re-balancing of portfolios based on a measure of risk. Such measure is that of market yields, since stakeholders are able to form their buy-sell price quotes in relation to their view of current and expected future risks.

Figure 3.2: PH Yield Curve
In percent



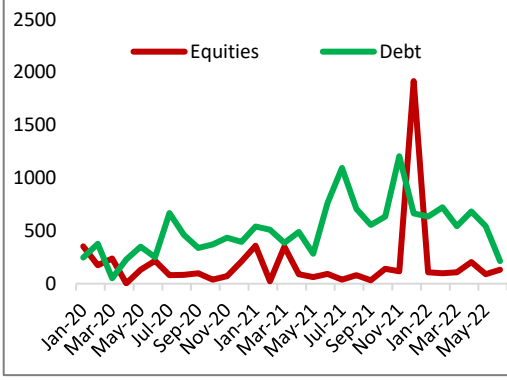
Source: Philippine Dealing System Group

Figure 3.3a: Foreign Direct Investments
In USD millions



Source: BSP

Figure 3.3b: Foreign Direct Investments
In USD millions



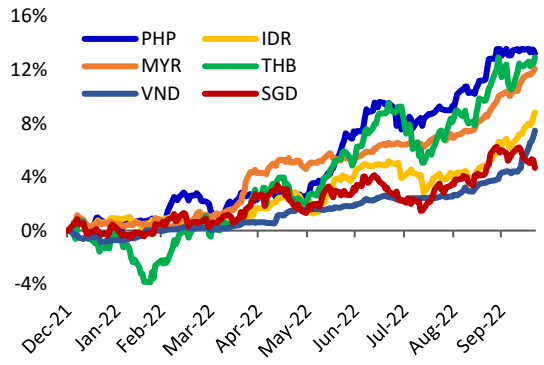
Source: BSP

[7] The view that risks are "too high" in the market, causing players to take less risk exposures.

These matter in today's market environment. The US Fed has aggressively raised their policy rate in response to persistently high inflation. While different jurisdictions may be facing different magnitudes of inflation, the rising Fed Funds Rate is affecting the global economy.

First, the cost of doing business inevitably rises. As USD-denominated assets raise their yields, portfolio funds move funds out of the EMs. This inevitably alters pairwise exchange rates, keeping the USD relatively stronger (**Figure 3.4**).

Figure 3.4: YTD Depreciation of ASEAN Currencies
Indexed, 31 Dec 2021 = 0



Note: IDR = Indonesian Rupiah, MYR = Malaysian Ringgit, THB = Thai Baht, VND = Vietnamese Dong, SGD = Singapore Dollar
Source: Bloomberg, OSRM Calculation

Second, the sheer possibility of a global recession modifies future business plans. Rising market yields makes investments more costly, and global trade, whose transactions are negotiated well in advance, has to anticipate the extent of possible exchange rate movements. With so much uncertainty, the trade channel will amplify the weakening growth prospects.

These have significant effects on EMs such as the Philippines. With the markets being driven by the fortunes of the USD, there is a heavier burden borne by price-taking economies like the Philippines. The depreciating currency will raise the burden of servicing foreign currency (FCY) debts. This comes at a time that some domestic industries and many individual firms have not yet fully recovered from the income scars caused by the COVID-19 pandemic. Operating from balance sheets that may not yet be "whole" (vis-à-vis their situation before COVID-19), the private sector may be adversely affected by rising interest rates and a depreciating local currency.

This will only be compounded by the threat of recession. As the possibility looms higher, our import of commodities comes at a higher cost [via a depreciating local currency (LCY)] or will be impaired (through supply bottlenecks). As discussed in previous sections of this report, that will be passed unto local prices and/or limit domestic activity. This will restrict growth momentum, which is the antithesis of our efforts to recover from 2020-2021.

3.2.2. A re-assessment of valuation

The discussion on expectations suggests that it does not take an officially called recession to drag financial markets.[8] If investors put premium on recession-like future conditions, this expectation will dampen expected income streams. If inflation remains persistently high, however, price-setting central banks such as the US Fed are more likely to keep the policy rate elevated. On both counts, asset values are expected to fall.

[8] High degree of uncertainty led financial markets to take a less rational approach, that every bit of good/bad news will shake markets rather significantly.

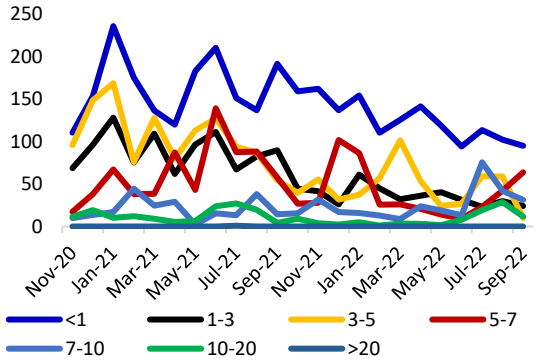
This affects tradeable securities as well as instruments such as mortgages and floaters which are subject to periodic repricing. With the former, the large shift in secondary market yield curves imply that mark-to-market (MTM) revaluation is likely to be substantive. This will not be uniform across all financial institutions, but those that built up their financial asset portfolio during the risk-off COVID-19 period are much more vulnerable. The full extent of the losses can be simulated but would only be realized as financial statements are closed.

For assets which are subjected to repricing, the burden of servicing at higher costs will be met with declining market values. The clear danger here is that at some point debt servicing may be more expensive than the underlying asset value. This is a recipe for defaulting on debt obligations.

The other downside of rising market yields is the expected decline in trading financial instruments (**Figure 3.5**). This will reduce market liquidity and in markets where active trading is not the norm to begin with, it is possible that big price swings arise from a few transactions. This will distort the revaluation of assets.[9]

Figure 3.5: PH GS Volume Traded

In PHP billions



Source: PDS Group, OSRM Calculation

The point of all these is that higher interest rates have predictably negative effects on asset values and market liquidity. However, what we add is that the adverse impact is disproportionately heavier for small open economies (SOEs). This is so because, by definition, they are taking global prices as given, at the expense of their own onshore rates. SOEs will also likely experience capital outflows with the USD-denominated capital outflows (i.e., buy-USD-sell-LCY) further depreciating the LCY.

This creates a vicious cycle against SOEs and their LCYs. This comes about because the rise in interest rates will not be neutral across jurisdictions. It represents a re-balancing of risk premiums because expectations are also altered.

For most onshore investors, this represents an outright repricing risk.[10] For those who have the capacity and resources to move funds across borders, their portfolios will naturally shift towards the dominant currency to-date, which is the USD. Interestingly, there are already media reports in financial circles that there is so much demand for USD that there is a developing scarcity of this safe-haven currency.[11]

[9] Price and volume go together; that is, we expect valuations to move along with volume – the lack of which implies uncertainty.
[10] The risk of interest rate changes to assets sensitive to its movements that may cause higher (or lower) interest charges/earnings.
[11] Currencies where investors usually flock into during times of economic distress; major safe haven currencies are the USD, JPY, and CHF.

3.3. Policy challenges

For as long as inflation remains above the authorities' preferred levels, interest rate action will be the expected intervention. This creates a trade-off between controlling the inflation pressures and the possibility that the economy weakens under a higher cost of doing business. For authorities, this trade-off is top of mind. The challenge then is less about any unconventional measure but rather what jurisdictions will do in balancing the objective of sustaining growth, providing welfare support to targeted constituents, controlling inflation, and reducing disruptions in the financial market.

3.3.1. The role of monetary policy

As argued in this FSR, this challenge is particularly more difficult for price-taking SOEs. The actions taken by monetary authorities must be responsive to domestic inflation pressures, but they also cannot overlook what the US Fed is doing.

It is the change in interest rate differentials between the local currency and the USD – rather than the level of the differential – that appears to drive expectations and risk behaviors of market players. This reflects the extent of market power that the USD maintains, effectively across all currency pairs. It thus reinforces the view that a domestic interest rate response is needed when the Fed acts because the interest rate differential will change.

It also highlights how interconnected financial markets are, causing spillover effects that would not be typically considered by the AEs. This is where the challenge really emanates because SOEs are mindful of the actions in AEs, alongside what is also developing onshore. In some cases, the onshore issues (such as oil price volatility) directly emanate from offshore sources. In others, they are more of spillover effects (from the policy actions elsewhere) which cause risks on their own.

This is the state of monetary policy in most SOEs. While inflation needs to be addressed, higher interest rates will not automatically resolve supply-side constraints that have driven inflation. But not taking action when inflation is high risks that market stakeholders form expectations that do not benefit from the informed forward guidance of authorities. This can result in overly aggressive or rigidly timid views which can cause wild swings in market outcomes. This is disruptive.

Taking action, on the other hand, is with the understanding that onshore inflation and cross-border issues are jointly being considered. We know from the former that higher interest rates affect growth, and they also affect exchange rates. Both of these have highly redistributive effects. We appreciate from the latter that SOEs operate in the bigger global

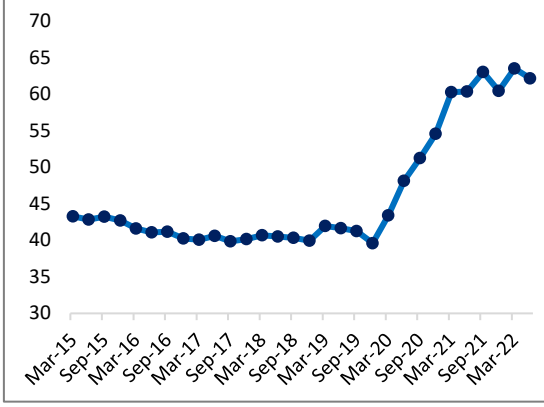
environment but do so without influencing market prices. This brings us back to the constraints faced by monetary policy in SOEs, balancing its impact on local growth while cognizant of cross-border cross-currency re-valuation issues.

3.3.2. Growth, borrowings and fiscal policy

Calls have grown for non-monetary interventions. With constraints faced by monetary policy, many are looking at government interventions to sustain the growth momentum. The unavailability of key commodities and its high prices, for example, warrant specific actions to alleviate the pressure points. As vulnerable communities are affected disproportionately by high inflation, social expenditures may, again, have to be considered.

Such interventions will likely require more borrowing. As of second quarter 2022, national government debt was at 62.1 percent of Gross Domestic Product (GDP) [Department of Finance (DOF), 2022], breaching the 60 percent threshold identified by international analysts (**Figure 3.6**). This aggressive borrowing strategy was necessary to finance off-budget needs during the COVID-19 pandemic, and public debt levels have continued to expand as borrowing remained central to fiscal efforts towards a post-pandemic recovery.

Figure 3.6: PH Government Debt as % of GDP



Source: CEIC, DOF

The challenge is that the fiscal position will not be independent of global market yields and local market outcomes. The active Government Securities (GS) market is indicative of the government's need to augment tax revenues in financing public expenditures. As the largest issuer of debt instruments, the fiscal authority is directly affected by rising market yields, either in the primary market or in refinancing existing positions. This will be compounded by an appreciation of the USD which increases the debt service of the government on its FCY obligations.

With tax revenues directly related to economic activity, any sharp slowdown will further require more borrowings for a given expenditure program. Thus, if global growth weakens significantly moving forward, a possible trade-off arises. On one hand, the authorities would prefer to sustain their budgeted programs, but a larger portion will need to be financed at higher borrowing cost. On the other hand, keeping debt levels to a minimum may mean that programmed items may need to follow some prioritization protocol. Either way, there will be a trade-off between present day requirements and desired future outcomes.

4 INTERCONNECTED RISKS IN AN INTERCONNECTED WORLD

CHAPTER 4

INTERCONNECTED RISKS IN AN INTERCONNECTED WORLD

The past three years have been challenging for all jurisdictions. Based on several metrics, however, the Philippines has fared well. The third quarter growth release validates that the country has turned things around from the sharp contraction early in the Coronavirus disease (COVID-19) pandemic to settle on a path of recovery. Banks have been in a strong position despite risks to the system, keeping expected asset quality impairment low. In the capital market, non-financial corporations (NFCs) actively issued new securities. Despite a turbulent 2022, employment figures are high, and household consumption is strong. With the latest Gross Domestic Product (GDP) figures, the country is likely to finish the year at the high-end of its forecast, with the possibility of outperforming should the usual fourth quarter spending materialize.

The downside is that inflation continues to rise, reflecting the conundrum facing the global economy. This comes with the universal belief that constraints in the supply chain for oil and other key commodities will persist into the immediate horizon. This will sustain high inflation, tighten financial market conditions, and rebalance risk premiums.

These global challenges come at an unfortunate time. There are many stakeholders who are still working to recoup from the erosions caused by COVID-19. Full recovery will require new opportunities that come with sustained growth momentum. With difficult global conditions ahead, the premium is all the more on economic growth.

That global growth momentum has dwindled, multilateral agencies have reduced their growth projections for 2022, and more so for next year. Analysts generally agree where the markets are headed. There is also a common understanding that the policy tools we use to address high inflation are also dampening the growth outlook. This is not only a loss in momentum but also in facing new social, economic, and financial costs in the process.

That supply bottlenecks, inflation and interest rate effects are global concerns only emphasizes the central point – we live in a highly interconnected world that is defined by interconnected risks. Those risks beget new vulnerabilities, and these vulnerabilities create further uncertainties. The risks, however, are not limited to the direct counterparties because they can – and do – cascade across the global economy. This cascade adds a further dimension.

This is the crux of our systemic risk assessment. The market is going through a storm. As in any storm, however, different communities in its path will experience different conditions at different times and in different intensities.

By their very nature, there is considerable uncertainty with storms and the damage they may – or may not – cause. Some will face very benign conditions, while others will feel the full brunt. However, this is not known in advance. The question then is how prepared a community is for more rains, and more rainy days. This is a question of resilience.

What we often forget is that there is a related concern: how prepared are we if the community that we actively interact with is economically incapacitated by storm floods. Even if our community is not in the expected path of the storm, we are still affected by it through the effects on other communities. This is the issue of interconnectedness which underpins systemic risk assessments.

4.1. Macroeconomic pressure points

The recommendation has been made to let exchange rates freely adjust. As argued, this reflects the current strength of the USD. For currencies paired against the USD, this will raise the price of imports relative to the price of exports. Proponents see the fall in imports as the needed adjustment since it can force a prioritization for the most needed versus those that may be postponed.

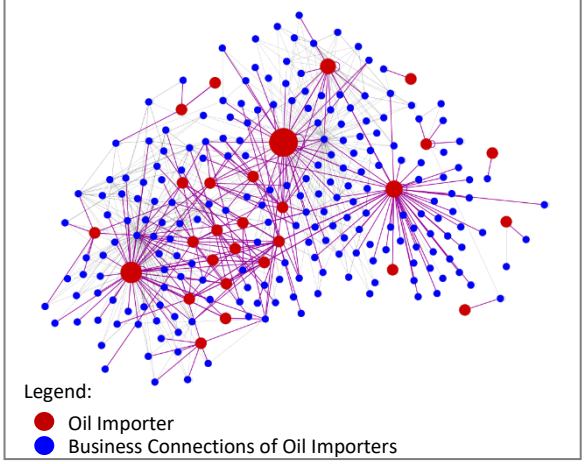
This recommendation is very dangerous for a country such as the Philippines. As shown in the previous section, we rely on imports for key commodities as inputs for domestic activity. The suggested "rationalization" of imports will be damaging, and its effects can cascade through the system.

We can see this from network models. In the case of oil and food, for example, there are only a handful of firms which import the respective primary commodities. These are the red dots in **Figure 4.1** and **Figure 4.2,** representing the core. One observes, however, that these core firms are connected to a broader periphery (**Figure 4.3** and **Figure 4.4**). This illustrates how constrained importation will affect not only the operations of the direct core firms but also creates an effect through a wider net. This is precisely how the risks are transmitted.

The strong possibility of cascading effects suggests that supply disruptions are best addressed by more supply and by ironing out the choke points in delivery and distribution. That these supply disruptions are global validates that the solution would have to be equally cross-border.

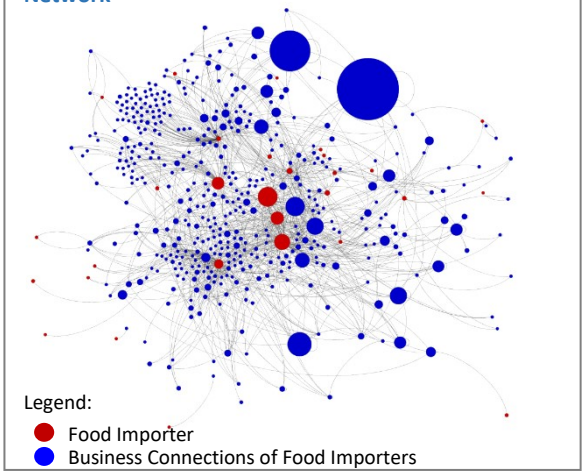
There is, however, a different take for emerging markets (EMs) / small open economies (SOEs). Countries such as the Philippines, which operate in the downstream segment of the oil market, are more limited in their recourse. The way forward is to source more crude and refined oil. The price-pass-through effect is already prohibitive, but supply constraints would cause more serious repercussions. Having a larger buffer – thus, more storage facilities – as well as a strong logistics network for distribution will help. These, however, take time to install and can be targeted over the medium-to-longer-term.

Figure 4.1: Oil PH Firms Immediate Core-Periphery Network



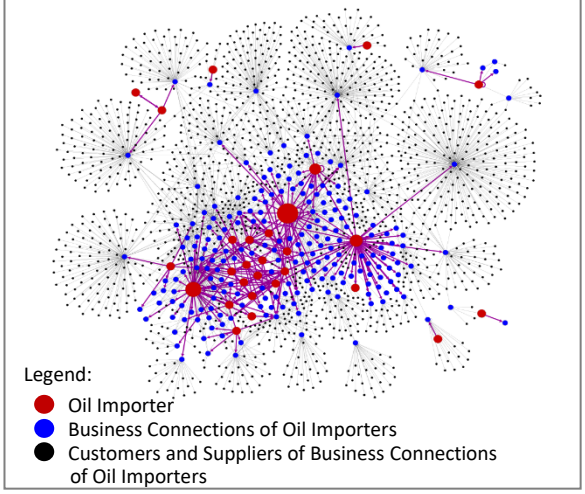
Source: S&P, BSP, OSRM Calculation, As of June 2022

Figure 4.2: Food PH Firms Immediate Core-Periphery Network



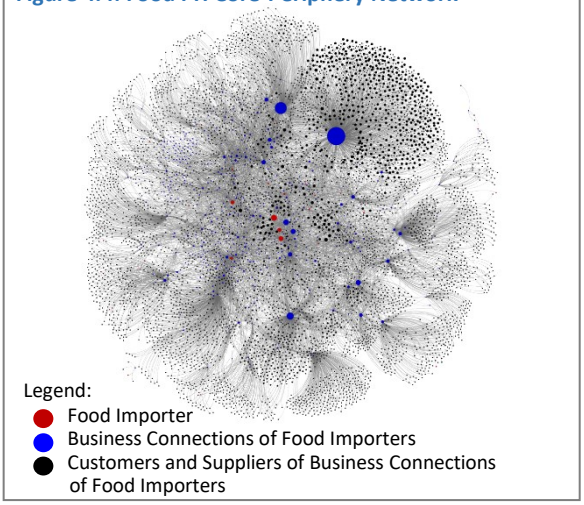
Source: S&P, BSP, OSRM Calculation, As of June 2022

Figure 4.3: Oil PH Core-Periphery Network



Source: S&P, BSP, OSRM Calculation, As of June 2022

Figure 4.4: Food PH Core-Periphery Network



Source: S&P, BSP, OSRM Calculation, As of June 2022

The same supply side intervention applies to various food items. The policy canvass, though, is broader because there are items produced locally. For a country where Agriculture, Forestry, and Fisheries figures are prominently in the ins and outs of economic activity, one would expect a mix that is tilted towards domestic production in lieu of imports. The inflation figures suggest the latter has a strong influence. New action is needed to alleviate the pressure points.

4.2. Financial market repricing and revaluation

Arguably, the vulnerabilities from tighter financial conditions dominate the headlines. From repricing risks to a weaker outlook, these are the consequences of being in the path of the storm.

However, we should be clear that the commodity being repriced is financial risk. Unlike goods, the concept of a "bottleneck" may not apply. Instead, the general market conditions already require a global repricing of risk premiums. This will be cascaded to the rest of the world through a rebalancing of cross-border and cross-currency risks, the negative effects of which are still unfolding.

In short, interest rates are higher because the world is riskier, and not just because policy rates have risen. But aside from tighter financial conditions, the hierarchy of risks – which risks are more urgent and how different jurisdictions are affected by these risks – is also changing. This highlights the fluidity that is embedded in financial markets.

For EMs/SOEs, though, the repricing and revaluation risks are largely exogenous to them since they cannot set global rates. This highlights the need to assess resilience to tighter financial conditions.

Typically, the impact will be on debt servicing (repricing risk) and on marking tradable assets to changed market prices (revaluation risk). Standard analysis can be done on the financial statements of borrowers and institutional investors to make the determination.

From our vantage view, a key consideration is the changing liquidity position of a firm. Those who have more expected cash outflows than inflows would need funding. This can be sourced internally (through profits) or externally (via debt). Profitability and debt are not independent though since impairments in the former will likewise constrain the ability to undertake the latter.

Assessing resilience to tighter financial market conditions can look at firms whose financial statements suggest a need for funding. Tighter financial conditions make it more expensive to borrow, and those who may have income impairments – from going through the COVID-19 years, for example – are more vulnerable than others. The point of assessment is the impact on the system should there be a credit shock on the firms.

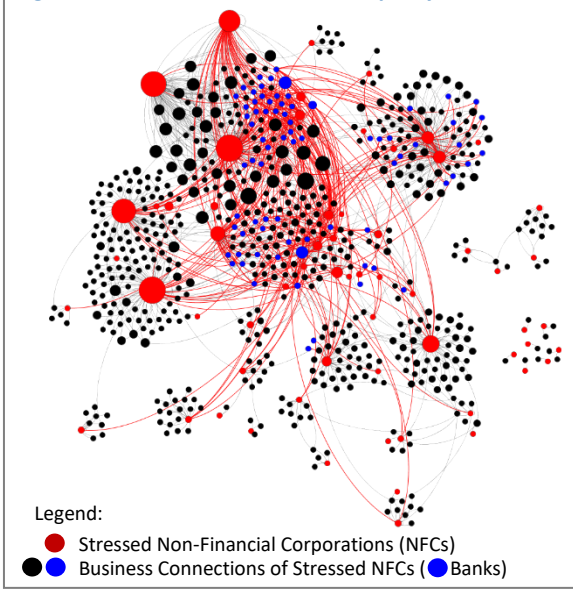
This network can be visualized in **Figure 4.5**. By looking at the links between these firms and their exposure to banks, we have a basis to report that our banks are in a strong position. That is, instead of looking at the reported capital adequacy ratio (CAR) of each individual bank, we can assess the totality of interlinked exposures as a stress test on the capital of banks in

the network. We find that our banks can absorb such a hypothetical stress.

4.3. Resilience and interconnectedness: A rejoinder

We return to our analogy that the markets are in the midst of a storm. There would be various forecasts and warning alerts, but there is broad uncertainty of the actual impact. This can only be determined after the fact. But policy intervention is better pre-emptive than reactive. As we argued, the proper perspective is to think about our preparedness for the possibility – not certainty – of more heavy rains and more rainy days.

Figure 4.5: NFC Immediate Core-Periphery Network



Source: S&P, BSP, OSRM Calculation, As of June 2022

Our view is that this global storm is consistent with the general appreciation of systemic risk. This is not an issue of the "extent" of the initial shock but rather the fact that there is contagion risk. This contagion is evident from the spillovers from advanced economies (AEs) to EMs/SOEs, and from the interconnected policy issues arising within each EM/SOE once the cross-border risks get transmitted.

We have made the specific point that EMs/SOEs face a larger policy challenge because we are generally price-takers in the global market. Thus, we need to worry about the onshore interconnected policy issues, while keeping an eye for offshore market developments and actions which trigger the onshore concerns.

As part of our pre-emptive surveillance, we can construct network models based on actual customer-supplier relationships among firms, and between these firms and their banks. By their very nature, these networks visualize contagion risk. Network metrics (centrality, core-periphery, links, etc.) allow us as well to get a sense of concentrations that can trigger risk amplification. And by analyzing firm-level financials, we can incorporate liquidity and leverage issues into the network analysis. This completes our commitment to focus on ***CL-2 risks*** (contagion, concentration, leverage, liquidity).

Two caveats must be raised. First, data, data, and more data. Networks are designed based on available data. We are able to do this by looking at publicly available information at the firm-level. With more data available, a better network representation of actual interlinked market arrangements is captured. Access to and transparency from these data – and new data – would always be useful. Data privacy is always maintained.

Second, while the networks reflect the interconnectedness of firms in the normal course of business, systemic risk is not in the public domain. This risk is not a line item in the balance sheets of private institutions. It is, however, a public good that is a concern of public authorities. As such, the authorities need to be concerned with slow-burn contagion or the presence of indirect-and-non-obvious transmission channels of risk. This is not being a pessimist. It is about taking a pre-emptive stance on resilience and interconnectedness.

The current market storm is **not** an "equal opportunity" shock. The effects will not be homogenous, and the spillovers are one way. Once EMs/SOEs are affected, they face idiosyncratic second-round effects as well, directly as a result of the spillovers and indirectly because their responses will be constrained as price-taking economies. That the storm is global, only highlights that we live in a Volatility, Uncertainty, Complexity, and Ambiguity (VUCA) world, an interconnected market with interconnected risks.

A point to be made, though, is that different jurisdictions are facing this storm from different initial conditions. The third quarter GDP growth data for the Philippines proves that recovery from COVID-19 is still evident, despite the drag globally imposed by the storm conditions. We do face high inflation, the macro measure from the "original sin" of supply bottlenecks and, likely, strong demand as well.

"Think global, act local" is a favorite mantra. The systemic-ness of the current risks we are facing only validates this very point. Accepting that there are systemic risks necessitates that local action needs to be taken.

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