

เมื่อโลกหมุนไว: นโยบายการเงินกับการปรับตัวต่อความท้าทายใหม่
**Monetary Policy Amid Shifting Ground:
Navigating the Road Ahead**

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สาขานโยบายการเงิน
ธนาคารแห่งประเทศไทย

การเปลี่ยนแปลงของเศรษฐกิจการเงินโลกจากปัจจัยต่าง ๆ ทั้งการทวนกลับของกระแสโลกาภิวัตน์ทางการค้า (deglobalization) การปรับระเบียบโลกใหม่จากปัญหาภูมิรัฐศาสตร์ กระแสความยั่งยืนด้านสิ่งแวดล้อม และการก้าวสู่โลกยุคดิจิทัลที่กำลังเกิดขึ้นอย่างรวดเร็ว ล้วนส่งผลกระทบต่อโครงสร้างเศรษฐกิจและภูมิทัศน์การเงินไทย ทั้งในด้านผลิตภาพและระดับศักยภาพของเศรษฐกิจไทย ความสัมพันธ์ของตัวแปรในระบบเศรษฐกิจ พลวัตเงินเฟ้อ ความเสี่ยงทางการเงิน และปัญหาความเหลื่อมล้ำทางเศรษฐกิจ บทความนี้วิเคราะห์ผลกระทบของกระแสการเปลี่ยนแปลงเหล่านี้ต่อการดำเนินนโยบายการเงินไทยในระยะข้างหน้า ที่จะท้าทายขึ้นในหลากหลายมิติ เช่น การประเมินภาวะและแนวโน้มเศรษฐกิจท่ามกลางความไม่แน่นอนสูง การชั่งน้ำหนัก และหาจุดสมดุลระหว่างเป้าหมายแต่ละด้าน (trade-off) ที่ซับซ้อนขึ้น รวมถึงข้อจำกัดของการใช้เครื่องมือนโยบายภายใต้บริบทที่การส่งผ่านนโยบายการเงินอาจเปลี่ยนแปลงไป ทั้งนี้ เพื่อตอบคำถามสำคัญว่า กรอบและกลยุทธ์นโยบายการเงินรวมถึงการใช้เครื่องมือนโยบายต่าง ๆ ต้องปรับเปลี่ยนไปอย่างไรเพื่อให้สอดคล้องกับความท้าทายใหม่ที่เกิดขึ้น รวมถึงเสนอแนวคิดในการดำเนินนโยบายการเงินที่เหมาะสมกับบริบทของไทย เพื่อรักษาประสิทธิภาพสูงสุดของนโยบายการเงินในการดูแลรักษาเสถียรภาพเศรษฐกิจการเงินในโลกยุคใหม่

Part 1 – The Shifting Ground

Over the past decade, macroeconomic and financial conditions in Thailand have been overall favorable. Among emerging economies, Thailand has been a successful and fast-growing economy with a remarkably stable external position. Prior to the onset of the COVID-19 pandemic, the Thai economy grew at 3.6 percent since 2010. Inflation averaged at 1.6 percent, which is well within the range of Thailand’s inflation target bands. As such, there was little need for monetary policy to tighten during expansions compared to the past given that inflation was exceptionally low and stable, resulting in loose monetary policy conditions. Since 2015, the policy rate in Thailand remained low for long, averaging at a low level of 1.5 percent, with rate hikes only occurring twice.

Various global tailwinds and structural forces in the Thai economy have been responsible for these favorable economic conditions. These include ongoing trends such as globalization and technological progress. They have had important bearings on GDP growth, particularly through its impact on the labor market and the competitive landscape of firms. As for inflation, the adoption of the inflation targeting framework by the Bank of Thailand in May 2001 as well as the increasing integration of trade and global supply chains have largely contributed to low and stable inflation (Manopimoke, 2018). Greater integration of markets has been suggested to exert downward pressure on inflation not only through lower prices of imported goods, but also through enhanced international competition which has helped restrain producer prices and markups.

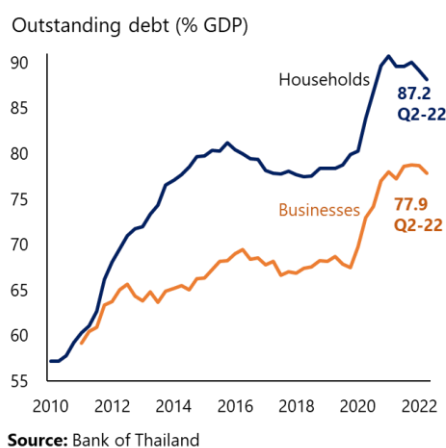
Nevertheless, the unprecedented **COVID-19 shock exposed important fragilities and vulnerabilities inherent in the Thai economic system** concealed by seemingly benign macroeconomic conditions. Compared to other economies, Thailand was hit particularly hard by the crisis due to its heavily reliance on tourism¹, delivering long-lasting and uneven impacts on the economy. A key reason in which the recovery of Thailand lagged others was because the engine of growth in Thailand has been losing steam even before the pandemic. Productivity growth for example, has been declining from 3.6 percent over 1999-2007 to 1.3 percent over 2010-2016. Private investment halved from 31 percent of GDP in 1996 to 17 percent in 2019 as foreign direct investment slowed (World Bank, 2020). In large part, this slowdown reflects aging demographics, reduced labor productivity especially in the service sector, and a dwindling boost to productivity due to diminishing gains from the integration into global networks and structural reforms of the country.

In light of the slowdown in productivity growth, Thailand has had to rely on other sources of growth to sustain output, such as one fueled by debt-driven demand. According to Figure 1, **household debt in Thailand has been exceptionally high** and has been trending upwards during the recent crisis due to the income loss of households. Current household debt to GDP levels have reached an all-time high of

¹ Tourism accounts for approximately 11 to 12 percent of GDP which is two to three times higher than that of neighboring countries.

approximately 90 percent. **The business sector also shows high debt to GDP levels**, reaching almost 80 percent in the current period. Among businesses, SMEs are particularly vulnerable, as they face unequal access to finance as well as intensifying competition from large businesses, e-commerce and rapid technological changes. The COVID-19 pandemic exacerbated these conditions, as evident by the slower and uneven recovery for these vulnerable groups. This poses great risks for financial stability going forward.

Figure 1 - Outstanding debt by businesses and households



In the recent period, **inflation rates in Thailand has also been increasing at unprecedented rates**, posing risks to price stability. Within a short span of time, Thai inflation increased from an exceptionally low average of 0.3 percent during 2015-2019 to almost 8 percent over the course of three years amidst global supply chain disruptions, high and volatile oil and global commodity prices as well as a weakening dollar. Thus, the COVID-19 shock has made it evident that inflation dynamics in Thailand are highly susceptible to global and relative price shocks. This is in large part due to Thailand's position as a small open economy, as well as its large reliance on food and energy sectors that both contribute to approximately a third of the CPI consumption basket.

Rising inflation against the backdrop of a weak and uneven recovery indeed presents complex macroeconomic challenges to policymakers in Thailand at this current juncture. However, the COVID-19 shock also raises longer-term challenges for monetary policy as it faces a more volatile and uncertain economic outlook. The pandemic shock has been suggested to have accelerated the pace and influenced the direction of some longer-term trends. Looking ahead, policymakers will face strong headwinds from the possible reversal of globalization, intensifying geopolitics, climate change risks, a changing financial landscape, as well as structural shifts in the labor market. The rest of this paper discusses the challenges that these headwinds present for monetary policy along various dimensions and evaluates whether this calls for a renewed framework for monetary policy going forward.

Part 2 – Challenges for Monetary Policy

The Bank of Thailand operates under a flexible inflation targeting framework to pursue goals of medium-term price stability, sustainable economic growth, alongside financial stability. In this section, we discuss the current and future challenges presented to the monetary policy framework amidst changing macroeconomic and financial conditions in Thailand, against the backdrop of increasing vulnerabilities in the Thai economic system. These include understanding inflation as well as dealing with important trade-offs between inflation and growth, and intertemporal tradeoffs between short-term stabilization and longer-term financial stability.

2.1 Understanding inflation dynamics

Changing inflation dynamics in Thailand makes **understanding the key drivers of inflation a crucial concern for central bankers.** At this current juncture, it is imperative to understand whether the rise in inflation will be permanent or transitory. Looking ahead, it will be important to understand how certain headwinds will influence the dynamics of inflation. These include in particular, trends such as *greenflation*, which has been accelerated by the ensuing energy crisis, as well as *deglobalization* which may bring about a restructuring of global production chains and protectionism policies that may push inflation to settle at a higher steady state. The rising importance of *digitalization* could also make inflation more volatile, as e-commerce will make prices more flexible in the face of reduced menu costs and higher competition (Manopimoke et al., 2018).

In what follows, we discuss how changing inflation dynamics in Thailand presents key challenges for monetary policy along two important dimensions – ***inflation measurement, and inflation control.***

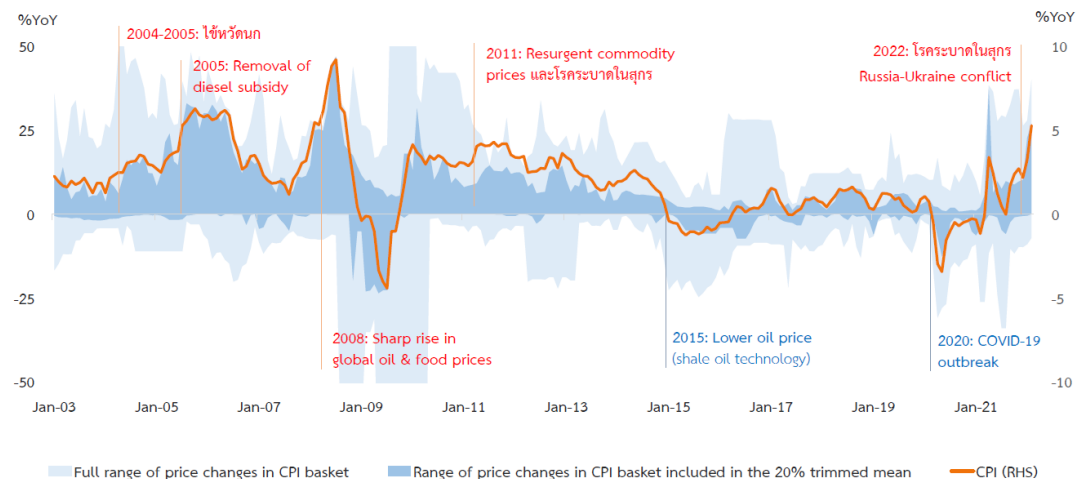
A. Inflation Measurement

To achieve price stability objectives, policymakers need a reliable measure of inflation that shows how prices are changing in the economy. There are various analyses underway at the Bank of Thailand and the Ministry of Commerce to improve how we measure inflation. Key issues include differentiating between the portion of goods and services in Thailand that are administered or price-controlled, which takes up to a third of Thailand's CPI basket (Peerawattanachart, 2015). Improvements towards quality adjustment procedures in CPI inflation should also take place to account for the frequent introduction of new products and quality adjustments especially in new technological products. Finally, due to the rising role of e-commerce, sources of online price data must be tapped into to study the implications of goods sold online for the construction of CPI inflation.

Another type of inflation measurement issue that is a key concern to policymakers is being able to distinguish between the permanent versus transitory components of inflation. Doing so is exceptionally important as different

types of shocks to inflation require different monetary policy responses. According to Figure 2, Thai inflation has been driven by a myriad of shocks. However, only a portion of these price changes represent the underlying trend that captures persistent and broad-based price pressures that policymakers should respond to. The remaining movements are transitory, as they typically arise from supply-side price pressures that are often volatile and can dissipate on their own. As such, the appropriate response would be to “look-through” these sector-specific supply side shocks.

Figure 2 - Inflation is comprised of a myriad of changing prices

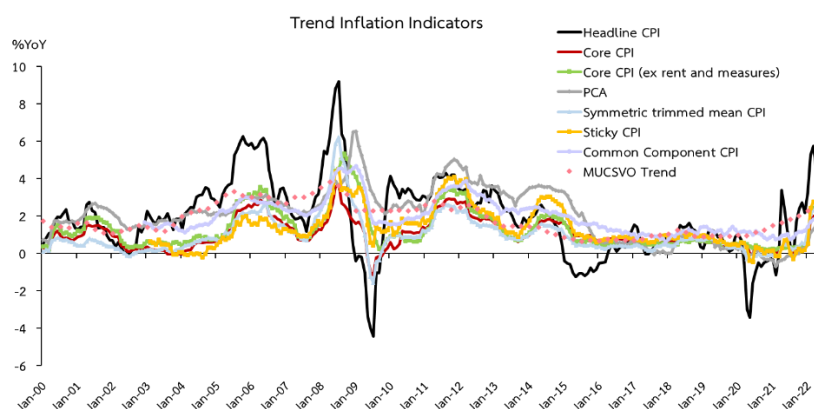


Source: Ministry of Commerce, BOT Staff calculations.

Looking ahead, the task of measuring underlying trend inflation will become increasingly difficult. Rising inflation amidst the current uncertain outlook makes inflation measurement difficult, and future headwinds to inflation will only but increase inflation volatility. According to Manopimoke et al. (2018), the rising importance of e-commerce may cause price changes to become more flexible and responsive to macroeconomic shocks due to reduced menu costs and enhanced price competition. More frequent and volatile weather conditions from climate change as well as the transition to a zero-carbon economy could also bring about larger swings in food and energy prices (Jirophat et al., 2022).

To gauge underlying price pressures, the Bank of Thailand has thus developed various trend inflation indicators (Figure 3). These include traditional ones such as core inflation, trimmed mean inflation, and the first principal component of inflation (PCA). Additional measures that have been developed recently include the MUCSVO trend (Manopimoke and Limcharoenrat, 2017), sticky-price CPI based on the method of Bryan and Meyer (2010), and the common component CPI (Manopimoke et al., 2022; Forni et al., 2000), which utilizes information in disaggregated price data to help improve upon measurement of trend inflation. As shown, the various trend inflation indicators move in the same direction and have been trending upwards during the recent period.

Figure 3 - Trend inflation indicators



Source: Ministry of Commerce, BOT staff calculations.

B. Inflation Control

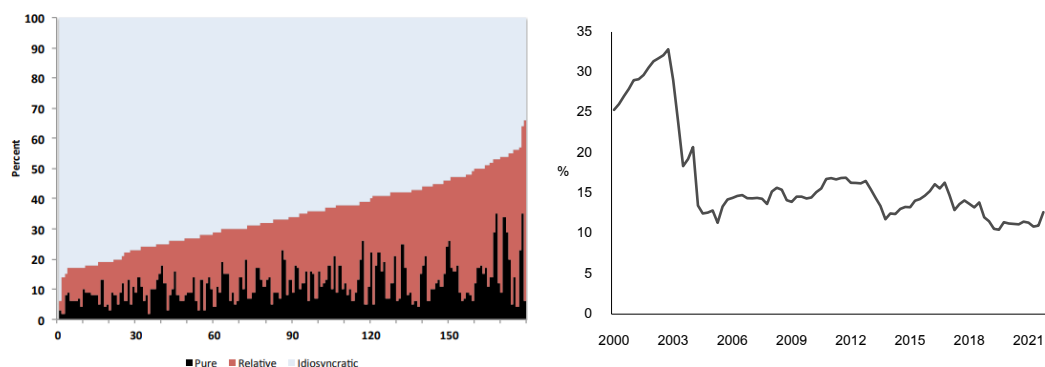
Many have questioned whether the ability of central banks to control inflation has diminished during recent decades. This is due to various reasons. First, there is evidence that relative price shocks such as those that stem from oil and food price fluctuations have been the key driving force for inflation fluctuations in Thailand. External factors have also become increasingly important in explaining Thai inflation. At the same time, inflation has become less sensitive to domestic factors such as the output gap and labor market conditions. We describe each of these evidences in turn and discuss whether they imply that monetary policy will have limited ability to pursue their price stability objectives going forward.

Existing studies of inflation show that **the behavior of inflation in Thailand is highly heterogenous at the disaggregated level, and relative price changes are extremely important in driving overall inflation dynamics.** According to Apaitan et al. (2020), more than half of all price fluctuations can be classified as relative price changes in response to aggregate shocks (Figure 5, LHS panel) while a large proportion of these price variations are correlated with food and energy price changes. The importance of relative price changes for inflation dynamics have been increasing over time, and is consistent with evidence of a declining role of a common component of inflation in explaining overall inflation variability (Figure 5, RHS panel) (Jirophat, et al. 2022). This phenomenon is consistent with other countries such as for the US, where Borio et al. (2021) argues that it occurs as a byproduct of improved monetary policy through better anchoring of medium-term inflation expectations.

In a similar vein, **Thai inflation dynamics is largely influenced by global factors.** Based on extracting a global component of inflation from 18 countries, the percentage of inflation variability explained by this global component for Thailand is as high as 62

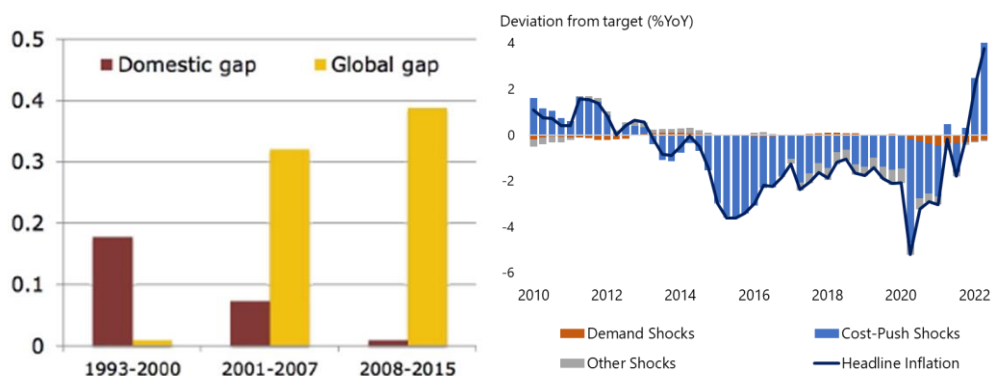
percent during 2001-2021⁴. This finding echoes those of Manopimoke (2018), where the rising importance of a global factor for inflation can be explained by an increasing role for a global output gap (Figure 6, LHS). This captures both the indirect effects of globalization on inflation through, for example, increased competition, as well as the large influence of oil price fluctuations on inflation through the direct import price channel. The influence of these global supply-side shocks for inflation dynamics in Thailand has been particularly large, as evident in the RHS panel of Figure 6.

Figure 5: Importance of relative price changes for Thai inflation



Note: LHS panel shows the fraction of sample variance of inflation explained by pure, relative and idiosyncratic components calculated from 179 sectoral inflation series (Apaitan et al., 2020). RHS panel shows 5 year rolling estimates of the share of inflation variability explained by a common component of inflation extracted from the first principal component of 120 sectoral inflation series.

Figure 6: Rising importance of global and supply-side factors for inflation



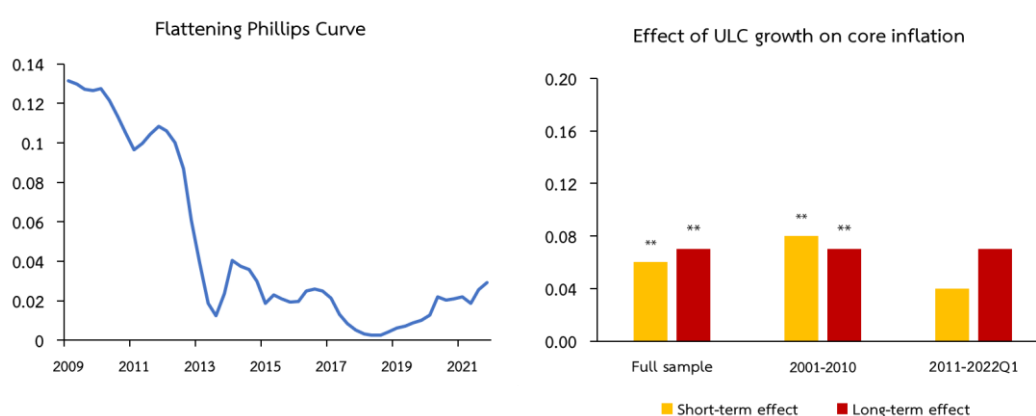
Note: Plotted in the LHS panel are the coefficients on the domestic and global output gap based on an unobserved components model consistent with an open economy New Keynesian Phillips curve for Thailand (Manopimoke, 2018). The RHS channel shows the contribution of different types of shocks to inflation based on an IPMM model.

The rising influence of global factors for inflation corresponds to a decline in the importance of domestic factors for Thai inflation. The worldwide phenomenon of

⁴ Global component extracted from a dynamic factor model applied to inflation series in 18 countries (AEs: US CA UK FR NL SE SW AU, Asia: JP KR TW PH TH SG, LATAM: BR MX PE CO). Based on a split sample analyses, the percentage of variation explained by the global component increased from 22.5% to 53.8% since the GFC.

a flattening Phillips curve has been apparent in Thailand, whether it be through the reduced sensitivity of inflation to the domestic output gap or inflation becoming less responsive to labor market conditions (Figure 7). According to past studies, the flattening of the Phillips curve could occur for various reasons. First, globalization may cause inflation to become more sensitive to measures of global slack instead, as shown in the LHS panel of Figure 6. Second, better monetary policy may play an important role because with a more credible inflation target, inflation may have become less sensitive to macroeconomic shocks. Finally, domestic labor market conditions may have limited bearing on price processes due to structural features of the labor market in Thailand such as low bargaining power of workers.

Figure 7: Reduced sensitivity of inflation to domestic factors

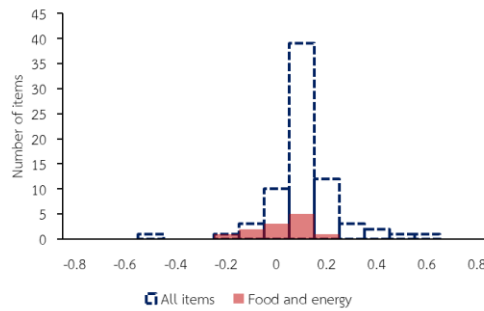


Note: The LHS panel plots the one-year moving average of the estimated coefficient on the output gap from a rolling Phillips curve regression based on annualized quarter-on-quarter core inflation over a 15-year rolling window. The right-hand-side panel shows the estimated coefficients on the growth of unit labor costs (ULC) based on multiple regressions with core inflation regressed on its own lag and unit labor cost growth. The calculation of long-term effects takes into account inflation persistence.

The rising influence of relative price shocks and global factors alongside a diminished role for domestic factors on inflation begs the question of whether CBs still have the capability to control inflation. We argue that these evidences may not necessarily imply reduced inflation control on the part of central banks. Policymakers may still be able to achieve its key mandate of price stability through a credible inflation targeting framework. Medium-term inflation expectations that are well anchored can prevent sector-specific relative price shocks or sizable global shocks such as large increases in world oil prices from translating into broad-based and persistent increases in inflation by limiting second round effects and spillovers between sectors.

For Thailand, **relative price changes have not led to sustained or broad-based increases in inflation through second-round mechanisms.** As illustrated in Figure 8, the impact of relative price shocks, including those that stem from salient price changes in food and energy sectors, delivered negligible impacts on one-year-ahead core inflation during past decades. A key implication from this result is that while relative price shocks in Thailand can explain a sizable share of near-term price fluctuations, they do not have broad-based nor long-lasting effects on inflation.

Figure 8 - Pass-through of relative price shocks to core inflation



Note: The horizontal axis shows the coefficient of salient relative prices changes on one-year-ahead core inflation. Salient relative price changes are computed from the residuals of 73 sectoral inflation rates that cannot be explained by a common component that is estimated based on the first principal component of these 73 sectoral inflation rates. The methodology is based on Borio et al. (2021).

A similar message can be confirmed by a shock spillover analysis between various sectors in CPI inflation. As show in Figure 9, inflation variability in a particular sector can be largely explained by its own shock (diagonal figures). This variance share is as high as 47 percent on average, whereas inflation variability that can be explained by shock spillover from other sectors are as low as 3 percent (off-diagonal figures). Most shock spillovers are also contained within similar categories such as those that occur within the food sector, or occurring as a result of direct pass-through of input prices, such as shock spillovers between condiments and prepared food (31.3 percent). Finally, while the energy sector is the primary source of shock spillover to other sectors, the degree of spillover is not that large (less than 20 percent). As such, despite the important role of relative price shocks and global factors for Thai inflation, a credible monetary policy regime has been able to help limit second-round behavior and large spillovers in Thailand, preventing broad-based and entrenched inflation.

Figure 9 – Shock spillover between various sectoral inflation rates in Thailand

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	From Others
ข้าว แป้งและผลิตภัณฑ์จากแป้ง (1)	41.73	0.25	5.78	1.68	1.18	1.14	1.45	0.85	6.99	0.20	1.16	1.65	1.18	1.19	7.99	1.26	8.84	7.22	8.26	58.27
เนื้อสัตว์ เป็ดไก่ และสัตว์น้ำ (2)	0.72	42.31	12.77	1.91	7.27	1.90	1.17	1.97	0.66	4.44	0.46	1.14	0.28	0.12	13.99	3.80	0.27	1.57	3.23	57.69
ไข่และผลิตภัณฑ์นม (3)	2.23	7.29	53.26	3.59	2.75	0.10	2.15	0.22	1.09	10.41	2.21	0.85	0.85	0.73	5.13	0.86	1.95	2.61	1.72	46.74
ผักและผลไม้ (4)	3.71	0.95	0.39	66.77	5.36	0.54	0.47	0.30	0.54	0.40	1.81	1.25	1.48	0.12	8.30	1.93	1.25	0.00	4.45	33.23
เครื่องประกอบอาหาร (5)	0.63	1.87	11.04	0.67	51.27	3.16	4.09	0.72	6.30	0.41	1.18	8.61	0.88	0.28	0.22	0.53	0.22	0.25	7.67	48.73
เครื่องดื่มไม่มีแอลกอฮอล์ (6)	1.74	0.91	0.65	0.35	7.72	26.37	6.75	0.89	1.65	3.53	8.80	0.71	2.72	8.53	2.39	0.54	8.24	2.94	14.56	73.63
อาหารสำเร็จรูป (7)	0.79	7.41	8.83	0.18	31.32	1.95	16.20	2.77	9.73	3.03	0.39	0.77	0.72	0.61	1.11	0.86	0.03	1.48	11.80	83.80
เสื้อผ้าและรองเท้า (8)	0.44	0.54	0.26	0.04	2.31	0.41	10.29	47.00	7.05	4.37	6.75	6.70	2.77	0.07	1.02	1.42	0.61	1.63	6.32	53.00
ค่าที่พักอาศัย (9)	0.28	0.08	4.00	0.57	1.45	0.24	8.72	1.02	61.04	2.19	1.88	2.44	1.76	0.38	4.53	1.87	0.46	2.13	4.96	38.96
สิ่งพอสําหรับใช้ในบ้าน อุปกรณ์ครัว และเครื่องใช้ไฟฟ้า (10)	1.33	0.73	0.53	0.55	8.35	1.14	10.71	4.98	4.95	50.39	0.50	3.07	4.61	0.44	0.49	0.32	0.46	0.48	5.97	49.61
อุปกรณ์อิเล็กทรอนิกส์ความสะอาด (11)	0.82	5.24	3.65	0.67	6.96	3.68	7.25	0.68	3.91	0.55	34.66	0.54	5.69	0.30	3.51	3.05	1.10	2.92	14.81	65.34
ค่าตรวจรักษาและค่ายา (12)	3.32	0.16	5.59	0.92	1.13	1.57	2.12	11.81	4.45	4.21	1.60	53.85	0.95	1.96	2.92	0.05	1.73	1.24	0.41	46.15
ค่าของใช้ส่วนตัว (13)	0.98	1.10	0.47	0.52	1.55	0.81	14.17	0.12	2.49	3.78	5.22	7.68	43.90	0.48	0.39	0.09	0.28	0.42	15.57	56.10
ค่าโดยสารสาธารณะ (14)	0.73	0.41	13.12	0.01	2.39	1.47	0.23	0.11	0.69	0.06	6.59	1.49	2.62	39.11	6.28	2.68	0.73	2.26	19.02	60.89
ยานพาหนะและค่าบริการ (15)	0.13	0.23	2.48	2.94	3.13	0.08	11.74	0.34	0.08	0.11	1.43	1.34	18.50	0.21	47.24	7.12	0.07	0.06	2.77	52.76
การบันเทิงและการศึกษา (16)	2.49	0.25	1.21	4.00	1.03	0.32	0.19	6.04	1.51	2.20	4.80	4.74	2.30	4.83	1.09	57.12	0.58	3.94	1.34	42.88
ยาสูบ (17)	1.71	0.11	0.85	0.31	2.94	0.20	3.18	3.82	2.17	13.34	3.81	2.10	1.10	0.42	2.04	2.13	49.86	9.67	0.24	50.14
เครื่องดื่มมีแอลกอฮอล์ (18)	6.74	4.50	18.89	0.59	2.08	2.38	1.37	0.58	1.06	5.22	1.01	2.40	1.33	0.42	0.35	6.12	4.17	40.67	0.10	59.33
พลังงาน (19)	8.32	0.18	2.58	1.81	1.10	2.06	1.71	6.10	0.48	3.49	1.88	0.47	0.49	0.90	0.45	1.94	0.90	1.71	63.42	36.58
To Others	37.13	32.19	93.09	21.33	90.01	23.17	87.77	43.31	55.81	61.96	51.48	47.94	50.22	21.99	62.20	36.57	31.89	42.53	123.21	53.36

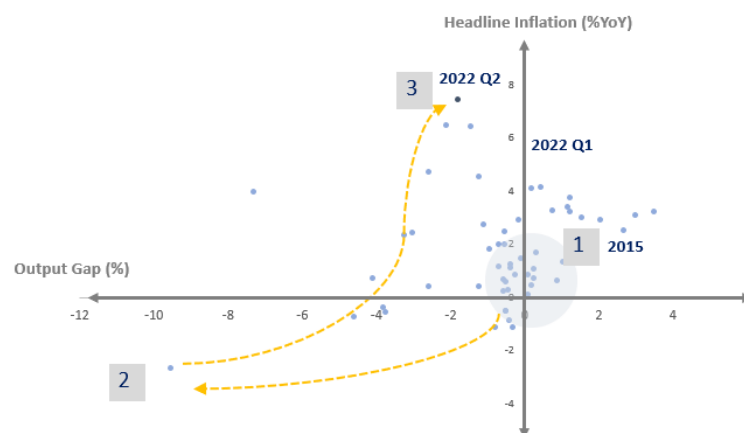
Note: Spillover table based on a one-year-ahead generalized forecast error decomposition from a Generalized Vector Autoregressive Model based on monthly inflation data (%YOY) of 19 sectoral inflation series. Each row indicates the variance share of a particular sector that can be explained by a shock to inflation in another sector. See Manopimoke et al. (2022) for details.

2.1 Trade-off between growth and inflation

At this current juncture, monetary policy faces a more difficult trade-off between stabilizing inflation and output because the reversal of favorable structural and supply-side trends going forward will tend to push prices and output in opposite directions. Over past decades, favorable supply-side factors played an important role in putting persistent downward pressure on inflation. In this low inflation regime, monetary policy faced little or no trade-off. In other words, with weak growth but inflation stuck at very low levels, central banks could keep interest rates low for longer to support growth with no signs of inflation accelerating. However, in the post-pandemic world, the impact of many structural forces on inflation—ranging from globalization, demographics, geopolitics, and the green transition—appears to reverse (Figure 10). It is possible that we might be entering into a high inflation regime whereby inflation is more volatile and tends to stay high by several forces of supply shocks and structural shifts. The divine coincidence of monetary policy is likely to disappear. The output-inflation trade-off will be stark, as stabilizing inflation will come at a cost of higher variability in output.

The trade-off becomes even more difficult when central banks have limited ability to control inflation. At a fundamental level, it is not possible for monetary policy to perfectly control inflation in the short run because monetary policy operates with long lags. The scope for monetary policy to influence inflation is even smaller given that high inflation is mostly driven by supply-side shocks and global factors that already play a key role in driving Thai inflation dynamics. The central bank will need to decide on the extent and length of inflation overshoot that they are willing to tolerate over the short run, which will depend on how transitory or persistent they view inflationary pressures. However, this is not an easy call given central banks' imperfect foresight and limited ability to control inflation, especially in an environment of high inflation volatility and structural changes.

Figure 10 - Thailand's inflation and output gap in the pre- and post-pandemic periods



The reduced responsiveness of inflation to domestic economic conditions and interest rates also implies a higher sacrifice ratio. A flatter Phillips curve of the past few decades (Figure 7, LHS panel) reflects that inflation has become less sensitive to

domestic demand conditions. As a result, bringing down inflation through the traditional interest rate channel may require a deeper contraction in economic activity. This higher sacrifice ratio makes the task of central banks even more challenging at the current juncture as a poorly chosen course of policy action can incur significant cost to the economy.

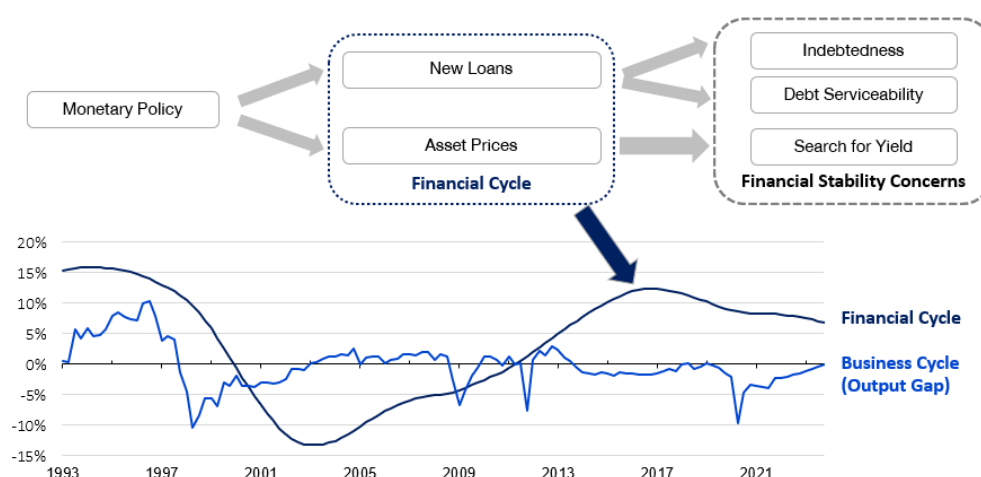
Monetary policy faces a fine balancing act to maintain overall macroeconomic stability amid this difficult trade-off which includes a high sacrifice ratio and heightened uncertainty. Tightening too soon could trigger a recession, while hiking too late could entail a prolonged inflation overshoot and a need to raise rates more aggressively which can be even more costly to the economy. In addition, in the case that the central bank underestimates the persistence of inflation to the point that the public perceives monetary policymakers to have reacted too slowly or to have a higher tolerance for inflation, this could risk de-anchoring medium-term inflation expectations. Once inflation expectations become entrenched, the cost of acting too late can be even more substantial. It is thus immensely important for central banks to balance all these considerations and act in a forward-looking manner to meet the medium-term macroeconomic objectives, which will require a thorough understanding of the nature of inflation dynamics, the link between inflation and real activity, as well as the transmission of monetary policy.

2.2 Intertemporal trade-off between short-term activity and longer-term financial stability

There is a growing recognition that finance plays an integral role in the economy and that financial factors can potentially influence economic fluctuations. Since the GFC, the role of financial factors in business fluctuations has been widely recognized. Evidence has shown that the booms and busts of the economic cycle were amplified by the financial cycle—defined as the financial expansions and subsequent contractions driven by the self-reinforcing interaction between funding conditions, asset prices, and risk-taking in the economy (Borio (2014)).

Taking both economic and financial developments into consideration in a unified framework can be challenging for policymakers due to the different frequencies of their cycles. Financial cycles tend to have longer periods between peak and trough compared to the economic cycles (Figure 11). This is because credit and asset prices take time to build up and reverse their cycles. More importantly, the two cycles seem to interplay in the way that amplify the macroeconomic outcomes. A rising financial cycle usually corresponds to the booming of the economy. And when the economic downturn is accompanied by a financial bust, it usually leads to a deeper economic recession or a crisis, as in Asian Financial Crisis for the case of Thailand.

Figure 11 - Financial Cycle vs. Economic Cycle

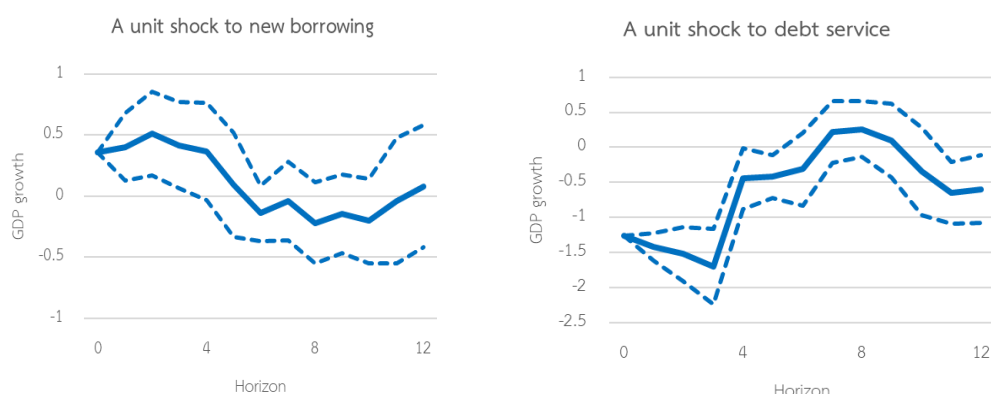


Monetary policy can have a significant bearing on longer-term financial stability through its influence on financial conditions that gives rise to the financial cycle.

Recently, there has been an active debate on the appropriate role of monetary policy with regard to financial stability. Monetary policy inevitably interacts with and has an impact on the financial cycle as it influences funding conditions, asset prices and risk-taking incentives in the financial system through its transmission mechanisms. An overly easy monetary policy could fuel the financial cycle, which in turn may encourage a build-up of financial imbalances, high levels of leverage, an excessive risk-taking in the financial system. (See Rungcharoenkitkul et al (2019), Aikman et al. (2020)).

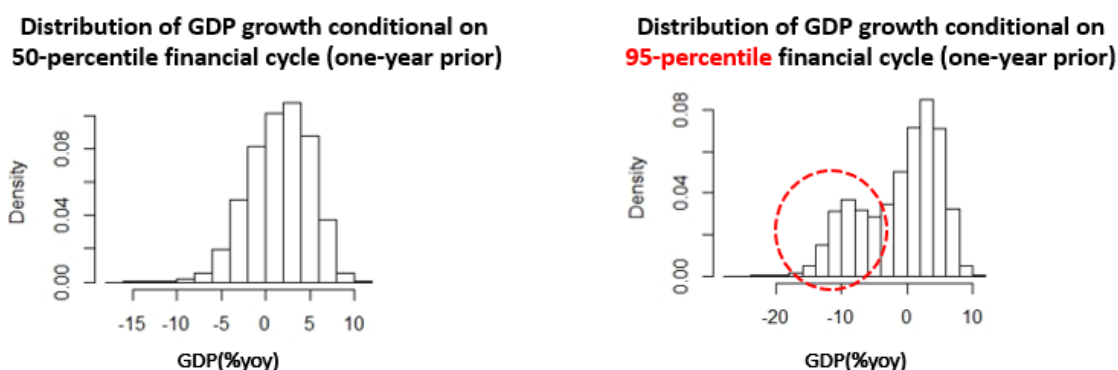
Monetary policy must recognize the intertemporal trade-off between short-run economic stabilization and longer-run financial stability and output consequences. As described above, monetary policy action today will inevitably have consequences on future output trajectories through its influence on financial stability. The build-up of financial vulnerabilities and risks could amplify shocks to the business cycle and add a drag on long-term potential growth. Evidence from the case of Thailand (Figure 12) shows that credit expansion will have a favorably positive output effect in the short run. But as the increase in new borrowing translates into higher debt service, in the medium run the output effect will be significantly negative (Amatayakul, et al. (forthcoming)).

Figure 12 - Impulse response of GDP growth after a unit increase in new household borrowing and in debt service



A higher level of financial cycle is also correlated with a higher probability of future economic downturn and a more severe recession (Figure 13). Due to the high level of financial vulnerabilities and accumulation of financial risks, the economy will face a more severe contraction and takes a longer time to recover. Moreover, future economic outcomes are contingent upon the fact that policy actions today will determine constraints on possible policy actions in the future (eg. lack of policy buffer).

Figure 13 - Distribution of GDP growth



Rising financial vulnerabilities during the COVID-19 crisis underscore the need to incorporate financial stability considerations into monetary policy formulation.

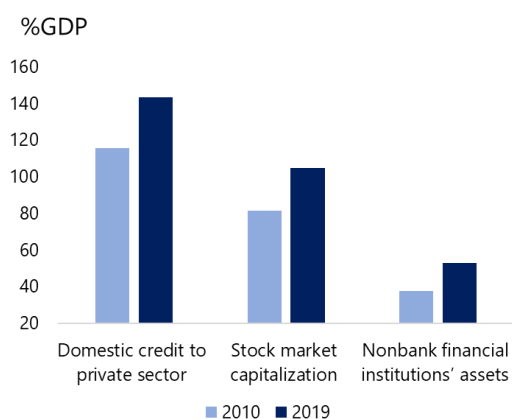
As mentioned earlier, the level of household and business leverages increased substantially during the COVID-19 crisis (Figure 1). This build-up of debt vulnerabilities in itself adds risk to the economic recovery, and at the same time constrains monetary policy decisions. Complementary tools such as macroprudential and financial measures may be needed to deal with household debt issues, to allow monetary policy more degree of freedom to focus on the main objectives.

Going forward, structural trends of growing financialization of the economy will make financial stability issues and the intertemporal trade-off more prominent for monetary policy.

Greater financial deepening of the real economy (Figure 14) will reinforce the feedback and the amplifying effects between the financial cycle and the business cycle. At the same time, increases in extensive and intensive margins of

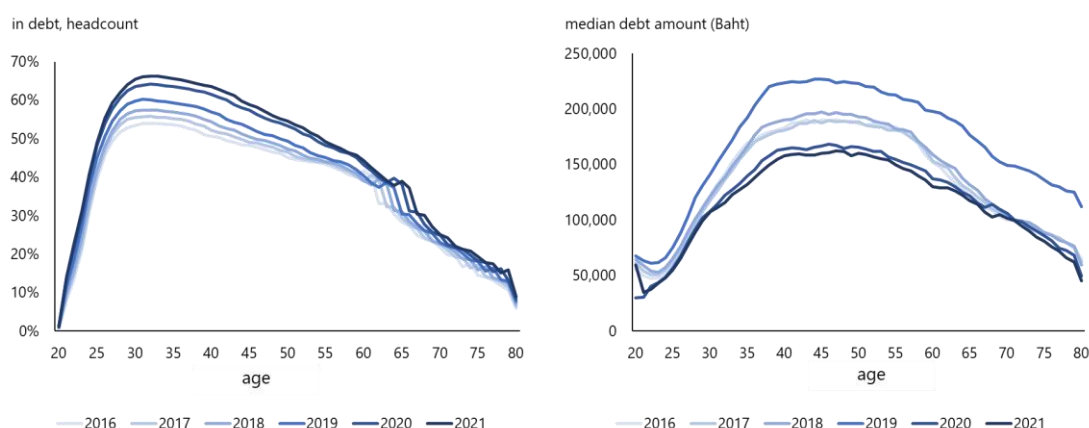
financial leverage, as reflected in the shift in the debt levels across the age profile of the Thai households (Figure 15), brings about a heightened financial stability risks not only at the macro level but also at the disaggregated level.

Figure 14 - Growing financialization of the Thai economy



Source: Standard & Poor's, IMF, Worldbank

Figure 15 - Extensive and intensive margins of Thai households' indebtedness across age profiles



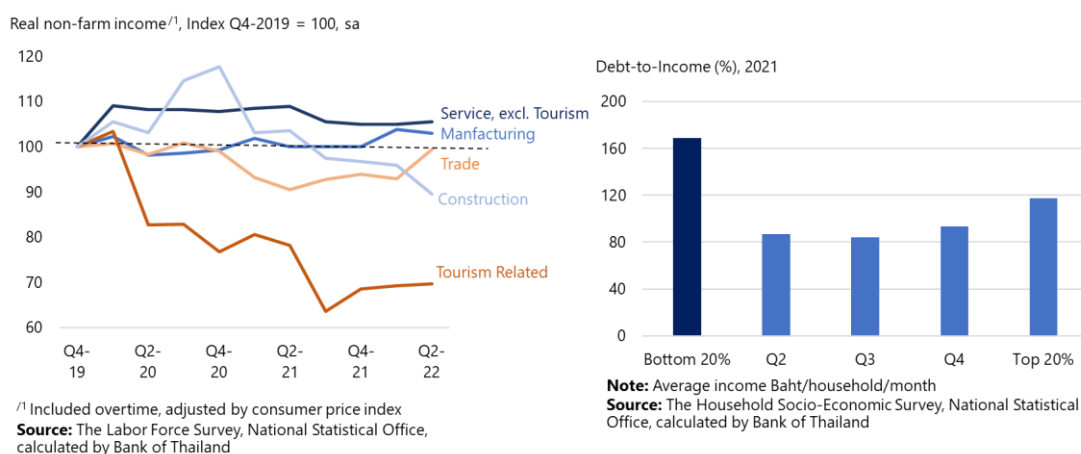
source: Thailand's National Credit Bureau (NCB)
Calculation adopted from Chantararat, et. al. (2019)

2.3 The distributional impact of monetary policy

Monetary policy deliberation and communication have become increasingly complicated against the backdrop of growing concerns on rising inequality. The income and wealth inequality has gained prominence in policy debates over the past decades, particularly in the aftermath of the COVID-19 crisis. Recently, central banks have also paid greater attention to and acknowledged the challenges posed by rising inequality. Although the trend of increases in income and wealth inequality is well outside the reach of monetary policy, and is better addressed by fiscal and structural policies, there are valid reasons why monetary policy should give considerations to inequality in policy formulation.

First, inequality, or more broadly heterogeneity of income and wealth, has a profound impact on the monetary policy transmission mechanism which can affect optimal policy decisions (see eg. Auclert (2019)). Thus, we need to gain a better understanding of the monetary transmission process by studying the distributional impact of monetary policy at the disaggregated level. **Second, the distributional impact of monetary policy, in turn, has implications on overall welfare.** Monetary policy can influence inequality through changes in policy stance over the near term, and also through its impact over the business cycle. For example, since high inflation and recessions often have a disproportionately large impact on the poor and the disadvantaged, keeping inflation low and limiting crisis probability can at least indirectly contribute to a more equitable society. Central banks can also help alleviate the undesirable distributional impacts of monetary policy by using other complementary policy tools to tackle the structural causes of inequality.

Figure 16 - Uneven income recovery and debt vulnerabilities across income groups



Part 3 – Navigating the Road Ahead

The framework and implementation of monetary policy have evolved over time to respond to structural changes in the global and domestic economy as well as shifts in economic thinking. In recent years, a number of central banks in advanced economies have conducted reviews of monetary policy frameworks in reaction to the challenges primarily posed by persistently low equilibrium interest rates. Since then, the challenges faced by central banks have become even more daunting as the COVID-19 shock has accelerated several structural trends that further complicate policy trade-offs and constraints. It is thus imperative to attune to these changes and revisit the robustness of the monetary policy framework, as well as the relevance of monetary policy analyses and communication strategies to help monetary policy navigate through these testing times.

3.1 A more robust monetary policy strategy

In managing the challenges of changing inflation dynamics and trade-offs highlighted in Part 2, we view the following three key elements as guiding principles for a robust monetary policy framework.

A. Holistic and Integrated

Monetary policy needs to take a holistic view when considering all monetary policy objectives and when using available instruments in policy formulation to safeguard the overall macroeconomic and financial stability amid more complex policy trade-offs arising from changing inflation dynamics, more volatile global conditions, and greater financial stability risks. Monetary policy needs to be **complemented by a wide set of tools that will help alleviate the trade-offs** and thus allow monetary policy a greater degree of freedom to address the main macroeconomic objectives. These tools, ranging from financial measures, macroprudential measures, foreign exchange intervention, and capital flow management measures, will need to be calibrated in an integrated way, taking into account their interactions and their joint effects towards policy goals, as well as the potential side effects of each instrument across the distribution and across time.

B. Medium-term orientation

A medium-term orientation for monetary policy should be emphasized given that (1) central banks have very limited ability to fine tune inflation in the short run through the traditional interest rate channel, (2) the transmission of monetary has long lags with outcomes that have become more uncertain in a changing environment, and (3) there is the need to account for the interdependence between macroeconomic stability and financial stability in the longer horizon. Considering the policy from a medium-term perspective **allows policymakers to preserve the medium-term price stability while looking through some incoming developments and temporary shocks** that may dissipate on their own, thus avoiding unnecessary macroeconomic volatility we might otherwise induce by our own policy action. **The medium-term approach also provides flexibility for monetary policy to take care of intertemporal trade-offs** by taking into account the potential longer-term consequences of policy action today on financial stability risks down the road.

C. Symmetry

Monetary policy should be symmetric in policy action. The stubbornly low inflation regime of the past two decades allowed policymakers to respond aggressively and persistently to the downside risks to the economy without inflation consequences, resulting in prolonged ultra-low interest rates and limited policy buffers. At present, **the changing nature of inflation processes together with the greater prominence of financial stability risks will require central banks to react more symmetrically to economic booms and busts.** A more symmetric view of policy formulation will help (1) avoid problems down the road stemming from the financial stability risk build-up

amid the low-for-long interest rate environment, while (2) responding to the need to build policy buffers for unfavorable economic outcomes, especially given the more frequent and volatile nature of future shocks.

3.2 Measurement and analytical tools

The pervasive structural changes brought about by major forces outlined in Part 1 are having profound effects on the Thai economy. They have implications for the inflation process, the potential output, the neutral interest rate, and the transmission of monetary policy, which lie at the heart of economic analysis essential for monetary policy formulation. To help refine policy strategy and calibration, we clearly **need to better understand how these structural trends will impact the dynamics of key macroeconomic variables and their relationship.**

To do so, it is imperative to develop new indicators to better identify and assess underlying inflation, labor market slack, the output gap, and other monetary policy relevant measures. Macro analysis will need to be updated to better capture the relationship and linkages among and between macro and financial variables by incorporating structural shifts and non-linearities. **Emphasis should be placed on the development of sectoral models and the greater use of disaggregated data** that can offer better insights into various dimensions of heterogeneities and the distributional impact of monetary policy.

New analytical tools and framework will also need to be developed to model and **understand macro-financial linkages and the interaction between policy measures, their transmission to the economy and their effects on financial system stability.** Given pervasive changes that the global and the Thai economy are undergoing, macro forecasting models will need not only to be updated to take account of the new dynamics and interaction, but also to be able to communicate the degree of uncertainty surrounding economic and inflation forecasts.

3.3 Policy tools

The increasingly difficult trade-offs and constraints facing monetary policy have urged central banks around the world to resort to a wide range of policy tools to pursue their policy objectives. The Bank of Thailand has advanced on this front. Confronted with extraordinary shocks of the COVID-19 pandemic, the policymakers have employed various tools to complement monetary and fiscal policy in safeguarding macro-financial stability, ranging from financial measures (e.g. funding for lending scheme, regulatory forbearance), foreign exchange intervention, and adjustments to macroprudential policy. We have also progressed on analytical research front in developing Thailand's monetary policy model under the "integrated policy framework (IPF)" that allows for policy analysis involving the use of multiple tools.

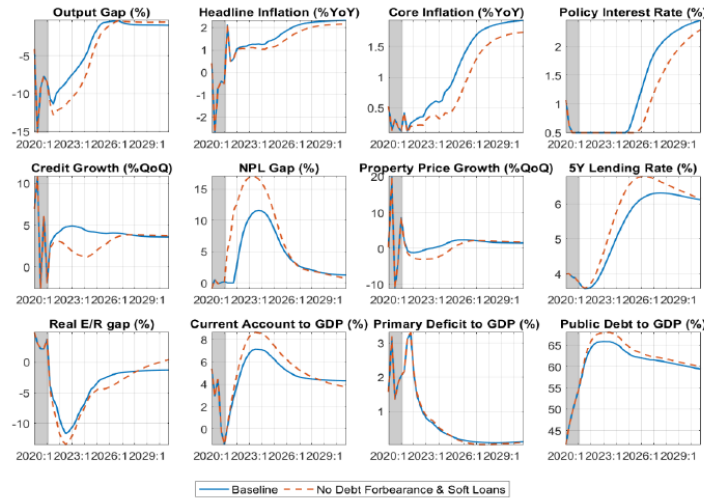
A thorough examination of the effectiveness and the interaction among the tools implemented during the recent crisis will provide valuable insights into evaluating our current policy toolkit. To give an example, Figures 17 and 18 below

show the results from a counterfactual analysis to gauge the usefulness of the financial policy measures, namely soft loans and regulatory forbearance, in complementing monetary policy (See details in Amatyakul, et al. (2021)). The conditional and distributional forecasts show that the use of the targeted financial measures to respond to the pandemic shock helps prevent a deeper economic downturn and reduce the likelihood of more severe tail events, which would otherwise call for more aggressive but implausible monetary policy actions.

Further work needs to be done towards devising an optimal integrated policy strategy in steering the Thai economy forward. **First, we may need to explore further tools beyond what have been implemented**, including different types of capital flow management measures (CFMs) and possibly other unconventional measures. This does not mean we need to follow other central banks and include all available instruments in our toolkit. Rather, the purpose is to update our policy toolkit based on a thorough understanding of each tool regarding its cost and benefit, its limitation, and interaction with other instruments in the specific context of the Thai economy and under different circumstances. **Second**, building on our existing analytical model, **we need to further develop a unified and coherent framework to enhance its ability to jointly calibrate various tools and assess potential risks**. This will help provide an analytical view on how best to combine the available tools to achieve optimal macro-financial outcomes in the context of Thailand given the trade-offs among the policy objectives and across time. This analytical foundation will serve as useful inputs into the overall policy decision-making process.

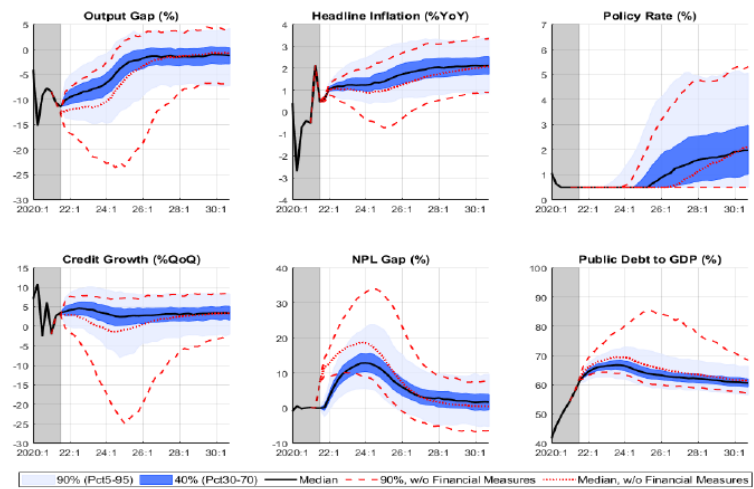
Finally, on the practical front, operationalizing a holistic and integrated policy framework requires coordination and synergies across policy instruments. This can be challenging as the control over different instruments is generally dispersed across different authorities. In the case of Thailand, the Bank of Thailand has continued to have a policy dialogue and an exchange of information with different authorities responsible for conducting macroeconomic policy and safeguarding financial system stability. An appropriate coordinating mechanism as well as institutional arrangement governing the decision-making processes will need to be designed and adjusted to overcome the coordination challenge under the integrated policy framework.

Figure 17 - Conditional Forecast: without 'soft loans' and 'regulatory forbearance'



Note: forecasts begin from 2021Q2. The orange dashed lines represent the case where there were no financial measures, by assuming shocks to the NPL gap during 2021 to be zero and by deducting the amount of soft loans from credit growth path. We assume the policy rate is constrained at 0.5 percent. The blue lines show conditional forecasts from the baseline scenario.

Figure 18 - Distributional Forecast: without 'soft loans' and 'regulatory forbearance'



Note: fan charts illustrate the forecasting distribution from the baseline scenario. Red dashed lines show 90% probability of the likely outcomes from the case, where there were no financial measures, by assuming shocks to the NPL gap during 2021 to be zero and by deducting the amount of soft loans from credit growth path.

3.4 Communication

Communication has become a vital tool in the implementation of monetary policy. Effective communication on the objective, strategy, and policy actions helps central banks steer expectations and thus increase the effectiveness of monetary policy. As policymakers become accountable for their policy decisions, it helps enhance the legitimacy and credibility of the central bank.

The importance of monetary policy communication has increased significantly over past decades. At the current juncture, improving monetary policy communication becomes all the more critical in the face of ongoing macroeconomic and financial challenges. This is because *first*, communication plays a key role in gaining public understanding of monetary policy deliberation amidst the more complex policy trade-offs central banks face, especially at the time of policy normalization. Particularly, the central bank's multiple objectives and the use of multiple tools to deal with the trade-offs warrant clear and active communication of policy rationales and intentions to avoid public confusion. *Second*, given that monetary policy operates over a medium-term time frame and given the more volatile nature of future shocks, communicating the uncertainties and risks facing the economy as well as the conditionality of monetary policy decisions is crucial for managing expectations, enhancing policy effectiveness, and maintaining central bank credibility. *Third*, the role of central bank communication grows as the public has given more attention and expected more from central banks to take on greater responsibility towards a green economy and reduced inequality. *Lastly*, effective communication through two-way dialogue with different stakeholders including markets, financial institutions, the media, businesses, and households, will help central banks gain more insights about the true state of the economy as well as understand the full scale of its policy impact as the economy undergoes profound structural changes.

The Bank of Thailand has recognized the importance of central bank communication and has sought to become more transparent and more effective on this front. We have continued to improve our communication practices on at least three aspects: (1) the timeliness and the more forward-looking element of the assessment of the current and future path of the economy and inflation (2) the depth of economic analyses presented in the monetary policy report to support policy deliberation (3) the format and the variety of channels of communication that are tailored to different groups of audiences.

Given the emerging challenges outlined above together with the new communication technologies including social media, we will need to evaluate the extent to which our communication strategy and practices need to be revised. The optimal communication strategy will require considering the level of transparency, the amount and timeliness of information, and the most effective vehicles, taking into account the institutional and social settings in the context of Thailand. We will also need to develop measures that help monitor and gauge the effectiveness of central bank communication in order continually improve our communication strategy towards achieving the best outcome.

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