POLITY AND GOVERNANCE

SHINDE'S FACTION IS REAL SHIV SENA, SAYS SPEAKER

CONTEXT: Maharashtra Assembly Speaker Rahul Narwekar on the disqualification petitions filed by the rival factions against each other's MLAs ruled the faction led by Chief Minister Eknath Shinde as the 'real Shiv Sena'.

BACKGROUND: In June 2022, Mr. Shinde and several other MLAs rebelled against then-CM Mr. Thackeray, leading to a split in the Shiv Sena, which had been founded by the late Bal Thackeray. It also led to the fall from power of the ruling coalition, the Maha Vikas Aghadi, which also comprised the Nationalist Congress Party (NCP) and the Congress, apart from the Shiv Sena. Sunil Prabhu, who belonged to the Thackeray faction, had ceased to be the whip from June 21, 2022, and Bharat Gogawale of the Shinde group had then become the authorised whip.

Ruling of Maharashtra Assembly Speaker Rahul Narwekar:

Rahul Narwekar refused to disqualify 30 Shiv Sena MLAs from both factions, including Mr. Shinde, citing a lack of valid grounds. Rahul Narwekar rejected the request of Shiv Sena (UBT), Thackeray faction to disqualify 16 Shinde faction legislators, as there was no valid ground to disqualify them. He also rejected the disqualification of 14 MLAs of the Thackeray faction, as the whip was not physically served on them. The Speaker dismissed all petitions seeking the disqualification of MLAs

Mr. Shinde pointed out that his Shiv Sena faction holds a majority against the rival faction led by Mr. Thackeray, adding that the party chief's individual opinion could not represent the entire party. He also highlighted the Election Commission of India's allocation of the Shiv Sena name and symbol to his party.

Rahul Narwekar noted that no power for Mr. Thackeray to remove Mr. Shinde from the post of the legislature party leader, as the Shiv Sena constitution made the Rashtriya Karyakarini, or national executive, the party's supreme body.

INTERNAL SECURITY

ARMED UAVs IN THE HANDS OF NON-STATE ACTORS POSE A CHALLENGE, SAYS NAVY CHIEF

CONTEXT: Navy chief Admiral R. Hari Kumar unveiled the first Drishti-10 starliner Medium Altitude Long Endurance (MALE) Unmanned Aerial Vehicle (UAV) manufactured by Adani Defence and Aerospace for the Navy in Hyderabad.

Drishti-10 Starliner UAV

Indian Navy unveils its first Drishti-10 Starliner UAV, built by Adani Defence and Aerospace. Over 70% of the UAV is indigenously made, based on the Israeli Hermes-900 design. Both Army and Navy have contracts for this advanced UAV. Army Aviation expects to receive its first Drishti-10s within the next 2-3 months. This acquisition bolsters the Army's capabilities in aerial surveillance and reconnaissance.

Navy Chief confirms 35 drone attacks on ships in the past 40-42 days, targeting primarily Israeli-linked vessels. Attacks concentrated in the Red Sea, north Arabian Sea, and central Arabian Sea. Navy Chief highlights the growing threat posed by non-state actors and terrorists using autonomous systems, especially at sea. Recent maritime incidents in the northern Arabian Sea underscore this concern.

SCIENCE AND TECHNOLOGY

HOW A SUPER-ENERGETIC PARTICLE FROM OUTER SPACE COULD HELP PHYSICS

CONTEXT: In May 2021, Japanese scientist Toshihiro Fujii discovers a high-energy cosmic ray event and names it "Amaterasu" the second-highest-energy cosmic ray to be discovered after the Sun.

Dr. Fujii, an astronomer at Japan's Osaka Metropolitan University, discovered the Amaterasu cosmic ray that had an energy of 240 exa-electron-volt (EeV) when analysing data collected between May 2008 and November 2021 by the Telescope Array Project in the U.S.

Cosmic rays are streams of energetic particles and clusters of particles coming from outer space and the sun. They include protons and alpha particles (nuclei of helium atoms). Their energy is mostly lost in the atmosphere itself, as they smash into atoms of the atmospheric gases and produce a shower of other particles with only low-intensity cosmic rays reaching the earth's surface. In 1991, another high-energy cosmic ray with an energy of 320 EeV was detected at the Dugway Proving Ground in Utah, the most energetic cosmic ray ever recorded.

How much energy?

Cosmic rays typically range in energy from about one billion eV to about 100 billion billion eV. The Amaterasu cosmic ray had an extremely high energy of 240 EeV – or 240 billion billion eV. In fact, it's about 40-million-times higher than the energy imbued in protons by the Large Hadron Collider (LHC), the world's most powerful particle-smasher, located in Europe.

What do cosmic-ray energies tell us?

Ultra-high-energy cosmic rays (UHECRs) are subatomic particles from extragalactic sources with energies greater than 1 EeV. Scientists have observed UHECRs more energetic than 100 EeV. But typically, cosmic rays with more energy than around 60 EeV don't 'survive' beyond a certain distance in space. This is because of the Cosmic Microwave Background (CMB) – radiation in the microwave frequency leftover from the Big Bang and which today pervades the universe.

The longer a UHECR passes through the CMB, the greater the suppression is. As a result, any UHECRs we spot on the earth should have come from a distance across which this suppression wouldn't have been complete. Scientists have estimated this to be 50-100 megaparsec, or 1,500-3,000 billion billion km. Moving near the speed of light, a cosmic ray will require 3-10 million years to travel this distance.

How can Amaterasu help?

Cosmic rays can be divided into two types: those originating from beyond our solar system, called Galactic Cosmic Rays (GCRs), and high-energy particles emitted by the sun, called Solar Cosmic Rays (SCRs), that are mainly protons.

Solar cosmic rays originate primarily in solar flares, comprising of solar energetic particles. Scientists have found that the mass ratio of helium to hydrogen nuclei – that is, the ratio of the total masses of hydrogen and helium present – is about 28:100, meaning there are about 28 grams of alpha particles for every 100 grams of protons in cosmic rays. This ratio is similar to the abundance of helium and hydrogen in the early universe.

GCRs are slowly changing streams of high-energy particles that constantly strike the earth. They are thought to originate outside the solar system in events such as supernovae. A supernova is an explosion that occurs when a massive star nears the end of its life after running out of matter that it can fuse. Although some 89% of GCRs is hydrogen, the remainder includes the nuclei of all elements, down to and including trace amounts of uranium. These nuclei are also fully ionized, meaning all of their electrons have been stripped away. As a result, these particles interact with and are affected by magnetic fields. This is why the sun's strong magnetic fields alter the energy levels of GCRs reaching the earth.

When cosmic ray particles reach the earth's atmosphere, they ionise air molecules that are at least about 3 km above the surface. Beyond that, they will have lost most of their energy.

Against this background, we can see how high the energy of the recently discovered cosmic ray was, and how that energy helps us select theories that better fit the data.

INTERNATIONAL RELATIONS

AN EXPANDING GAZA WAR, WITH NO ENDGAME IN SIGHT

CONTEXT: The repercussions of Gaza war have spread dangerously to Lebanon, Iraq, Yemen and even Iran.

On January 2, an Israeli drone strike on a Hamas office in Beirut, killed Saleh al-Arouri, the deputy head of the Hamas leadership located abroad. The next day, two explosions in Kerman, at the mausoleum of General Qassem Soleimani, former head of the Al Quds Force, killed 95 people who had gathered at the shrine to mourn on the fourth anniversary of his assassination. Though the Islamic State has claimed responsibility, Iranians suspect it to be Israeli's actions.

On January 4, the United States announced the targeted killing of the head of an Iran-affiliated militia in Baghdad that has been attacking American targets since the beginning of the Gaza war. These attacks have occurred amidst the ongoing skirmishes in the Red Sea's waters over the last several weeks, with the Houthis targeting commercial shipping with drones and missiles and inviting strong U.S. retaliation. The Houthis have demanded that humanitarian assistance be provided urgently to the beleaguered Palestinians in Gaza.

These attacks have escalated tensions in the already volatile region that is reeling from the death and destruction wreaked by Israel in Gaza since early October. Over the last three months, over 22,000 Palestinians have been killed, most of them women and children, while nearly two million have been displaced, the largest displacement of Palestinians in history. An extraordinary humanitarian catastrophe faces the two-million strong Palestinian community in Gaza.

Netanyahu could pursue escalation

Israeli troops have also expanded their military operations to the West Bank: nearly 300 Palestinians have been killed, several thousand taken into detention, and numerous homes destroyed. Israeli cabinet Ministers have complemented the violence of their soldiers by calling for the cleansing of Gaza of Palestinians and the resettlement of the enclave with Jewish settlers.

The major concern at present is that a desperate Israeli Prime Minister Benjamin Netanyahu might pursue the escalation trajectory as, despite the mass killings in Gaza, Israel has very little to show for its efforts: though committed to the destruction of the Hamas war machine and of the movement itself, no prominent Hamas leader has been apprehended in Gaza, while Hamas continues to inflict damage on Israeli soldiers in the ground fighting. A few thousand women and children have been detained by Israeli security to reveal the location of Hamas leaders, with no apparent success so far.

There are concerns that al-Arouri's killing was carried out to proclaim some success in the war on Hamas. Saleh al-Arouri, has been a prominent presence in the Hamas leadership had been located in Beirut and was principally liaising with Hezbollah and Iran. Most reports suggest that he had no involvement with the planning or execution of the October 7, 2023 attacks.

A role for Saudi Arabia

The U.S. has been in search of a policy from day one. Beyond its total political and military support for Israel, the Biden administration has shed crocodile tears over humanitarian concerns, but achieved nothing on the ground. The region's already discredited hegemon appears incapable of insisting on a peace process — obviously, the clout of Israel's right-wing supporters in Washington have paralysed the government and lulled it into somnolence.

The Arab states have exhibited neither voice nor leadership so far: beyond pointless conferences and resolutions, there is no sign of a consensual and forceful approach to the broader Palestine issue or even concerns about regional security.

The principal responsibility for ushering in peace now rests on Saudi Arabia. It alone has the regional and global standing to insist that its views be deferred to. Having shrugged off its subordination to U.S. diktat, it has been confidently pursuing an independent foreign policy that resonates positively with the world's leading powers. Palestinian interests and regional peace require robust and pro-active Saudi initiatives, which have been missing so far.

This is the time when West Asian rulers and their people should be on the same side to serve the region's interests. Failing that, they will be swept away in the tidal wave of regional conflict they have done nothing to prevent.

POLITY AND GOVERNANCE

THE LAWS AROUND REMISSION POLICY

CONTEXT: The Supreme Court on January 8 set aside remission order passed by the Gujarat government in August 2022 releasing 11 convicts sentenced to life imprisonment for the gang rape of Bilkis Bano and murder of her family, during the 2002 communal riots in Gujarat.

What are clemency powers?

Article 72 and 161 of the Constitution provide powers to the President and Governor respectively to grant pardon, commutation, remission, respite or reprieve to a convict. These are sovereign powers vested in the heads of the Union and State executive to be exercised on the advice of the council of ministers.

Apart from this, the appropriate State government under Section 432 of the Criminal Procedure Code, 1973 (CrPC) may remit the whole or part of the punishment to which a convict has been sentenced. In case of life imprisonment convicts, this remission can be done only after a period of 14 years in jail as per Section 433A of the CrPC.

What is the background to the remission in this case?

The heinous crimes for which the 11 persons were convicted were committed in Gujarat in March 2002. However, considering the need for fair trial, these cases were shifted to Maharashtra by the Supreme Court in 2004. A CBI trial court in Mumbai sentenced the convicts to life imprisonment in 2008.

One of the convicts, Radheshyam Shah, moved the

Supreme Court in 2022 seeking directions to the Gujarat government to consider his remission application under the State's 'Remission policy' of 1992. The argument was that this was the policy in force at the time of the commission of offence (2002) and at the time of sentencing (2008). The Supreme Court in an order in May 2022, directed the Gujarat government to consider Shah's application for premature release under the 1992 policy. The Godhra Jail Advisory Committee (JAC) headed by the District Magistrate unanimously recommended the remission of sentence for the 11 convicts and they were freed in August 2022.

What are the issues involved?

The premature release of the 11 convicts by the Gujarat government raised certain serious legal and moral questions.

Firstly, the provisions of CrPC are quite clear, that the appropriate State government for considering the remission application should have been Maharashtra where the sentencing happened and not Gujarat where the offence was committed or jail term was being served. Also, the law requires the opinion of the presiding judge of the convicting court to be obtained before considering the remission petition, which was not followed in this case.

Secondly, the Supreme Court in Laxman Naskar versus Union of India (2000) had laid down five grounds on which remission is to be considered. The first of these is whether the offence is an individual act of crime that does not affect society. It would be preposterous to surmise that such a heinous crime does not impact the conscience of a civilised society. Thirdly, the Supreme Court in Sangeet versus State of Haryana (2012) had held that a convict serving life imprisonment does not have a right to be prematurely released on completion of 14 years in jail and that remission should be considered only on a case-by-case basis. In light of this judgment, the Union Home Ministry had issued an advisory in February 2013 prescribing that remission should not be granted in a 'wholesale manner'.

The Gujarat government had revised its 'Remission policy' in 2014 in line with this advisory and had explicitly barred remission for those convicted of rape and murder. However, the instant remission was granted based on the policy of 1992 (that had no such exclusions) as it was in force at the time of conviction.

What did the Supreme Court rule?

The Supreme Court in its order categorically held that the Gujarat government is not the appropriate government to consider the remission petition. It held that the May 2022 order of the Supreme Court, that asked the Gujarat government to consider the remission petitions, was obtained through fraud and suppression of facts before the court. Hence, it held the May 2022 order of the Supreme Court to be a nullity. It further ordered the surrender of all the 11 persons before jail authorities within two weeks. It held that the appropriate government for considering the remission petitions in the instant case is Maharashtra and it may consider their petitions in accordance with law and the guidelines laid down by the Court.

GEOGRAPHY

WHY DID NORTH INDIA FOG HEAVILY IN LAST WEEKS OF 2023?

CONTEXT: As winter tightened its grip on northern India, a blanket of fog descended on several States in the last days of 2023 and first of 2024, creating challenging conditions for residents and travellers alike.

Where was fogging reported?

According to weather reports in late December 2023, minimum temperatures in Punjab, Haryana, and the northern reaches of Rajasthan and Uttar Pradesh hovered around 60 C - 90 C. In New Delhi, south Rajasthan, and north Madhya Pradesh, some places recorded minimum temperatures in the range of 100 C - 120 C.

At the same time, most of North India also experienced a dense fog that reduced visibility in many areas to as little as 50 metres for several days. Haryana, including Chandigarh, plus isolated pockets of Uttarakhand, Uttar Pradesh, Bihar, Rajasthan, and Madhya Pradesh reported fog with visibility reduced to under 200 metres. Other States including Jammu & Kashmir, Himachal Pradesh, Odisha, Chhattisgarh, Jharkhand, and Uttarakhand also reported fog for a few hours in the morning.

What effects did the fog have?

Nearly 450 flights were delayed or cancelled on December 27 at Delhi's Indira Gandhi International Airport as a dense layer of fog enveloped the city. On December 29 and 30, almost 100 and 80 flights, respectively, were delayed from Delhi. The arrival and departure of several Delhi-bound trains were also delayed by poor visibility and dense fog on December 29.

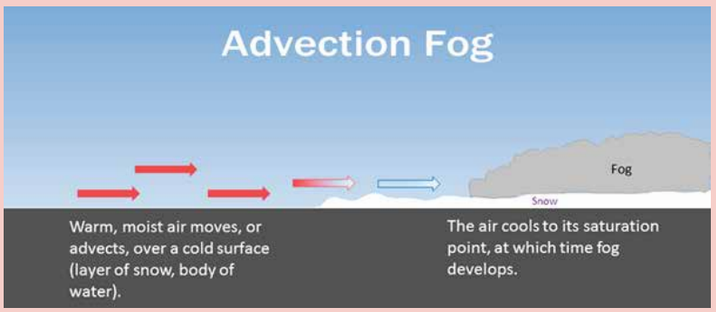
On December 29 that at least eight trains that were supposed to have reached the national capital the previous night didn't, while a few trains scheduled to reach on the morning of December 29 had been delayed by a few hours.

What is fog?

A fog is a collection of small droplets of water produced when evaporated water has cooled down and condensed. Fog is nothing but a thick cloud, but very close to the earth's surface. For a thick fog to form, temperatures should be lower and abundant moisture should be available near the surface. Fog materialises whenever there is a temperature disparity between the ground and the air. This happens frequently during Indian winters — fog is created when the temperature drops at night and in the early morning, aerosols present in the atmosphere condense. High humidity, combined with an ample presence of water vapour or moisture, encourages foggy conditions.

The process by which it cools plays a pivotal role in the formation of fog. One primary mechanism contributing to fog formation is called infrared cooling. It typically occurs when the weather is transitioning from summer to winter. In the summer, the ground absorbs radiation from the sun, becomes warmer, and moistens the air passing over it. When cooler weather kicks in, this mass of warm, moist air comes in contact with processes that cool it. The 'collision' prompts the

water vapour in the air to condense rapidly, giving rise to fog. Another type of fog, known as radiation fog, is prevalent and occurs when an unseasonably warm day with high humidity is followed by rapidly dropping temperatures. The specific type of fog, its duration, and its effects are contingent on various environmental conditions.



Why is northern India prone to fogging?

The entire Indo-Gangetic plains are prone to formation of fog during winter season, as all the conditions — low temperatures, low wind speed, moisture availability and plenty of aerosols — are present in this region. Moisture incursion into this region can happen once a Western Disturbance — a precipational pattern that brings rain to north India during winter months — moves across northern parts. Sometimes, moisture incursion can happen from the Arabian Sea also.

INTERNATIONAL RELATIONS

36-MEMBER COUNCIL OF MINISTERS TO TAKE OATH OF OFFICE IN BANGLADESH TODAY

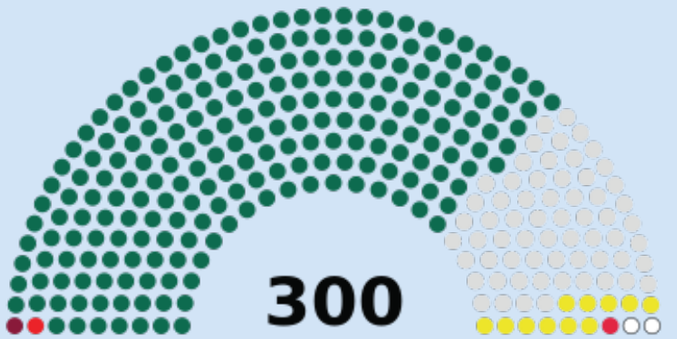
CONTEXT: Bangladesh ruling coalition announced the list of the 36-member Council of Ministers, including 25 Cabinet and 11 state Ministers, who are set to be sworn in on Thursday under the leadership of Prime Minister Sheikh Hasina. The list, who will be administered the oath of office by President Mohammad Shahabuddin.

No Momen

According to the list, 14 incumbent Ministers were dropped from the Cabinet, including heavyweights like Foreign Minister A.K. Abdul Momen, Finance Minister A.H.M. Mostafa Kamal, Planning Minister Abdul Mannan, Agriculture Minister Abdur Razzak and Commerce Minister Tipu Munshi. The strength of the existing council of ministers was 44.

The new Council of Ministers list named 14 new faces as Cabinet ministers and seven as state Ministers. Simin Hossain Rimi, the daughter of the first prime minister of Bangladesh, Tazuddin Ahmed, is among the new faces named on the state ministers list.

Bangladesh went to polls on Sunday, in which the ruling Awami League headed by Prime Minister Hasina won 222 seats; the Jatiya Party 11 seats; the Workers' Party, Jatiya Samajtantrik Dal and Bangladesh Kalyan Party one seat each; and independent candidates won 61 seats.



INTERNATIONAL RELATIONS

ILO WARNS OF RISE IN UNEMPLOYMENT, DECLINE IN REAL WAGES

CONTEXT: The International Labour Organisation (ILO) in its 'World Employment and Social Outlook: Trends 2024' released its report in Vienna anticipate the global unemployment rate to increase in 2024 while growing social inequalities.

Joblessness and the jobs gap have both fallen below pre-pandemic levels but global unemployment will rise in 2024. The growing inequalities and stagnant productivity are causes for concern. In India, real wages are "positive" compared with other G20 countries.

The macroeconomic environment deteriorated significantly over 2023. Ongoing geopolitical tensions as well as persistent and broadening inflation triggered frequent and aggressive moves by central banks. Monetary authorities in advanced and emerging economies implemented the fastest increase in interest rates since the 1980s, with significant global repercussions. China, Türkiye and Brazil slowed down considerably, causing adverse impact on global industrial activity, investment and trade. Despite the economic slowdown, global growth in 2023 was modestly higher than

anticipated and labour markets showed surprising resilience.

Modest recovery

Both the unemployment rate and the jobs gap have declined below pre-pandemic values on the back of strong jobs growth. The global unemployment rate in 2023 was 5.1 %, a modest improvement on 2022. The global jobs gap also saw improvements in 2023, but, at close to 435 million, remained elevated.

The labour market participation rates had largely also recovered from their pandemic lows. Real wages declined in the majority of G20 countries as wage increases failed to keep pace with inflation. Moreover, in 2023, the numbers of workers living in extreme poverty — earning less than $2.15 per day per person in purchasing power parity (PPP) terms — grew by about one million globally.

China, the Russian Federation and Mexico enjoyed positive real wage growth in 2023. The strongest wage gains were in China and the Russian Federation, where labour productivity growth was among the highest in G20 countries in 2023. Real wage growth in India and Türkiye was also positive, but the available data refer to 2022, relative to 2021.

ECONOMICS AND DEVELOPMENT

RISING PRICES CAP INDIA'S THIRST FOR CRUDE OIL IMPORTED FROM RUSSIA

CONTEXT: India has bought hundreds of millions of barrels of cut-price Russian crude, saving itself billions of dollars while bolstering Moscow's war coffers, since the invasion of Ukraine nearly two years ago.

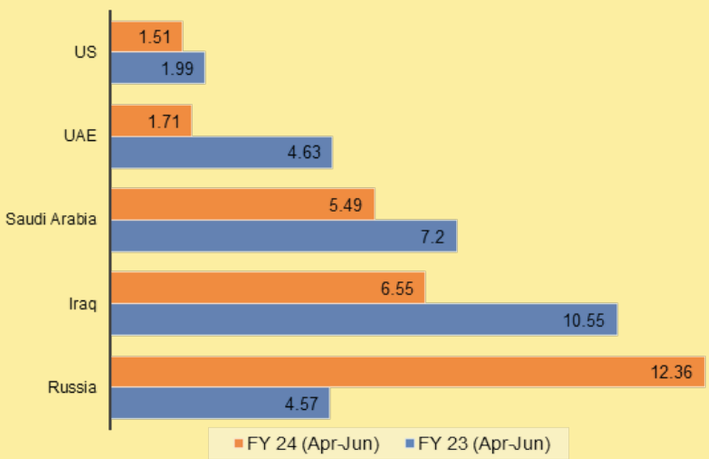


FIGURE: Indian purchases of Russian crude in defiance of Western pressure over the Ukraine war have fallen to an 11-month low as the price tag on the discounted oil rises. The purchases have catapulted it to second place among Russia's customers behind China.

Russia has become India's top oil supplier, overtaking the traditional heavyweight West Asian exporters, and remains so by a distance despite the recent falls. India is the world's third-largest importer and consumer of oil, and imports nearly 80% of its needs. In the 10 months after Russia invaded Ukraine, India saved $3.6 billion by importing heavily discounted crude from Russia, according to data presented by a ruling party lawmaker in parliament. The country's imports of Russian crude peaked in June 2023 at almost two million barrels per day, but have steadily shrunk since.

But the price of Russian crude has risen in the face of OPEC+ production cuts and increased demand from China, making it less attractive to Indian customers. Indian refiners bought 1.45 million barrels per day of Russian oil last month, their lowest amount since last January and down nearly 16 percent from November.

INTERNATIONAL RELATIONS

CHINA'S POLICY DILEMMA: IS BOOSTING CREDIT DEFLATIONARY?

CONTEXT: The People's Bank of China (PBOC), China's central bank faces a major hurdle in quelling the threat of deflation.

The PBOC's benchmark one-year loan prime rate (LPR) stands at 3.45%, the lowest since August 2019, after a series of rate cuts in recent years. When adjusted for factory-gate prices, however, the rate has in fact risen: at 6.45% in November, it is off a multi-year high of 8.95% in June, but still above China's expected GDP growth for 2023 of

FIGURE: Line chart representation of PBOC's benchmark one-year loan prime rate (LPR)

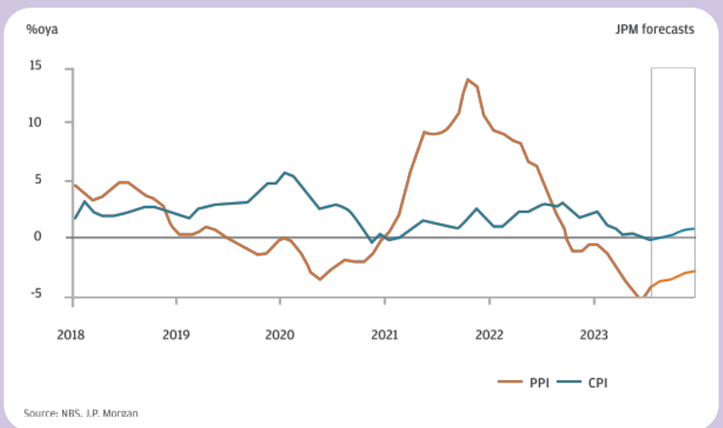


FIGURE: Line chart representation of the Producer Price Index (PPI) and Consumer Price Index (CPI).

China's consumer prices fell by 0.5 % year-on-year in November, the fastest in three years, while factory-gate prices tumbled by a whopping 3 %, underscoring the weakness of external and domestic demand relative to production capacity. A sustained period of falling prices may discourage further private investment and consumer spending, which, in turn, can hurt jobs and incomes and become a self-feeding mechanism that weighs on growth, as seen in Japan in the 1990s.

The ratio between M 1 money supply — which consists of cash in circulation and corporate demand deposits — and M 2 money supply - which includes M 1, fixed corporate, household and other deposits – fell to a record low in November. Low M 1 growth could be an indicator of weak private business confidence, or a by-product of the property downturn, or both, suggesting less satisfactory policy transmission.

The People's Bank of China (PBOC) is under pressure to cut interest rates as falling prices raise real borrowing costs for private businesses and households, curbing investment, hiring and consumer spending. Deteriorating asset quality from the property crisis and local government debt woes is also pressuring central bankers to release liquidity into the banking system by cutting reserve requirements to fend off any funding crunch risk.

Infrastructure spending

The demand for credit in China mainly comes from the manufacturing and the infrastructure sectors, whose overcapacity issues are exacerbating deflationary forces in the economy. Infrastructure spending has been responsible for China's high investment rates for decades, diverting economic resources away from households. Much of the credit is going to the infrastructure sector and also into some of the excess capacity. More credit is flowing to productive forces than into consumption, exposing structural flaws in the economy and reducing the effectiveness of its monetary policy tools. Beijing has been redirecting money flows from its ailing property sector towards manufacturing in a bid to move its industries up the value chain.

Analysts say the PBOC's predicament increases the urgency for the government to speed up structural reforms to boost consumption, a long-standing deficit in policies it has vowed to address throughout 2023, but struggled to make significant progress.

Of the 21.58 trillion yuan ($3.01 trillion) in new loans in January-November 2023, about 20% went to households, while corporate loans made up for the rest. Analysts said most of those loans were probably taken by state-owned enterprises, which typically have access to cheaper credit from state banks.

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