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Foreign Portfolio Investors & Domestic Institutional Investors

- For the first time in seven months, the Domestic Institutional Investors (DIIs) have overtaken the Foreign Portfolio Investors (FPIs) in net investment in Indian equities.
- If global liquidity and inflow of funds by FPIs led to the domestic market rally that began in October 2020, the current strength in the market is being provided by DIIs.

No.	Foreign Portfolio Investors (FPIs)	Domestic Institutional Investors (DIIs)
1.	FPIs are foreign investors who invest in Indian securities, not more than 10% and satisfy the criteria laid down by the regulations.	DIIs are those institutional investors who invest in securities and other financial assets of the country they are currently residing in.
2.	They are the big foreign companies such as investment banks, mutual funds etc, who invest in the Indian markets.	There are four sets of DIIs - Indian Mutual Funds, Indian Insurance Companies, Local Pension Funds and Banking & Financial Institutions.
3.	SEBI introduced the concept of FPIs, regulated by SEBI (Foreign Portfolio Investors) Regulations, 2011. Under this, the FPI Includes the FII, QFI, and sub-accounts under one category.	They are also regulated by the government, but lesser than the FPIs.

Cosmic Rays & Positrons

- Generally, high energy particles are lower in number in the cosmic Universe. But, there are an excess number of high energy particles of the antimatter counterpart of the electrons, called positrons.
- Now researchers from the Raman Research Institute (RRI) found that cosmic rays propagating through Milky Way galaxy interact with matter to produce other cosmic rays with electrons and excess of positrons.
- [Raman Research Institute, Bengaluru is an autonomous institution of the

Department of Science and Technology.]

- **Positron excess** - Positrons with energy of more than 10 giga-electronvolts (GeV) are found more in number.
- However, Positrons with energy more than 300 GeV are lower in comparison to what astronomers expect.
- This behaviour of positrons between 10 and 300 GeV is called the 'positron excess' – Caused by the new cosmic rays.

Galactic Clouds

- The Milky Way consists of giant clouds of molecular hydrogen. They are the seats of the formation of new stars.
- They can be as massive as 10 million times the Sun's mass and they can extend up to 600 light-years.
- Cosmic rays, produced in supernovae explosions propagate through these clouds before they reach the Earth. They interact with molecular hydrogen and can give rise to other cosmic rays.
- [Components of cosmic rays - Protons, antiprotons, electrons, positrons, boron, carbon among others.]
- As they propagate through these clouds, they decay from their original forms and intermix, lose their energy by energising the clouds, and may also get re-energised.
- These galactic clouds provide the astronomers a crucial input - the number of giga-electronvolt cosmic rays.
- These help determine the excess number of positrons that reach the Earth.

Python-5 Missile

- India's indigenously-developed Light Combat Aircraft Tejas aircraft of Aeronautical Development Agency (ADA) has been cleared to carry fifth generation Python-5 missile as part of its weapons package.
- Python-5 Air-to-Air Missile (AAM), one of the world's most sophisticated guided missiles, would significantly enhance Tejas' combat prowess.
- It is developed by the Israeli company Rafael Advanced Defense Systems.
- It is powered by a solid propellant rocket engine. This dual use missile is suitable for air-to-air and surface-to-air missions.
- With Mach 4 speed, it can engage enemy aircraft from very short ranges and near beyond visual range. Range >20km
- It has lock-on-before launch (LOBL) and lock-on-after launch (LOAL) capabilities.

Task Force on National Mission on Sustaining Himalayan Ecosystem

- A team of Indian Council for Agricultural Research (ICAR) scientists has been awarded for Excellence in Dissemination of agricultural practices and technologies from a National Agriculture Magazine.
- Their work has been recognised for improving livelihood and subsistence production systems in remote areas like Leh.
- The group was supported by Task Force on Himalayan Agriculture under National Mission on Sustaining Himalayan Ecosystem (NMSHE).
- The Task Force, as part of Climate Change program of Department of Science and Technology (DST), worked on the six components.
- [Six components - Database development, monitoring, vulnerability assessment, adaptive research, pilot studies, and organized capacity building/ training programmes.]

National Mission on Sustaining Himalayan Ecosystem

- National Mission on Sustaining Himalayan Ecosystem (NMSHE) is one of the eight missions under the National Action Plan on Climate Change (NAPCC).
- Launched in 2010, NMSHE delivers better understanding of the coupling between the Himalayan ecosystem and the climate factors.
- It aims to develop in a time bound manner a sustainable National capacity to assess the health status of the Himalayan Ecosystem.
- It enables the policy bodies in their policy-formulation functions and assists States in the Indian Himalayan Region with their implementation of actions selected for sustainable development.
- NMSHE adopts different approaches for building various capacities for sustainable development.
- The mission covers 11 states (Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, Assam and West Bengal) and UTs of Jammu and Kashmir and Ladakh.

Doomsday Glacier

- The melting of Antarctica’s Thwaites Glacier or the “Doomsday Glacier” has long been a cause of concern because of its high potential of speeding up the global sea level rise happening due to climate change.
- Researchers at University of Gothenburg are saying that fears related to its melting are worse than previously thought, owing to the supply of warm water flowing underneath at a rate underestimated in the past.
- Called the Thwaites Glacier, it is 120 km wide at its broadest, fast-moving, and melting fast over the years.
- Because of its size (1.9 lakh square km), it contains enough water to raise the

world sea level by more than half a metre.
- Studies have found the amount of ice flowing out of it has nearly doubled over the past 30 years.
- Thwaites's melting already contributes 4% to global sea level rise each year. It is estimated that it would collapse into the sea in 200-900 years.
- Thwaites is important for Antarctica as it slows the ice behind it from freely flowing into the ocean.

University of Gothenburg's Study

- This study used an uncrewed submarine to go under the Thwaites glacier front for the first time to make observations.
- The submersible "Ran" measured among other things the strength, temperature, salinity and oxygen content of the ocean currents that go under the glacier.
- The researchers identified three inflows of warm water, among whom the damaging effects of one had been underestimated in the past.
- There is a deep connection to the east through which deep water flows from Pine Island Bay, a connection that was previously thought to be blocked by an underwater ridge.
- There were distinct paths that water takes in and out of the ice shelf cavity, influenced by the geometry of the ocean floor.

Star Campaigners

- A star campaigner is a **celebrity vote seeker** in an election for a party, who can be a politician or even a film star.
- They are nominated by the concerned political parties specifying their constituencies and duration of the status.
- There is no law governing who can or cannot be made a star campaigner.
- Since political parties appoint star campaigners, the Election Commission of India (ECI) has issued guidelines the Model Code of Conduct regulating poll campaign by them.
- **Numbers** - A 'recognised' party can nominate a maximum of 40 star campaigners.
- An unrecognised political party can nominate a maximum of 20 star campaigners.
- **Need for a star campaigner** - The ECI keeps a tab on expenditure incurred by individual candidates during campaign - Rs. 70 lakh for most states in one constituency by each candidate.
- Expenditure incurred on electioneering by the star campaigner is not added to a candidate's poll expenditure giving him/her more scope for expenditure.
- However, for an individual candidate to get relief from campaign

expenditure, the star campaigner has to limit oneself to general campaigning for the party.

- According to the Representation of People's Act, these expenses will be borne by the political parties.
- **Prime Minister -** The MCC guidelines say when a PM or a former PM is star campaigner, the expenditure incurred on security including on the bullet-proof vehicles will be borne by the government.
- However, if another campaigner travels with the prime minister or a former minister, the individual candidate will have to bear 50% of the expenditure incurred on the security arrangements.

Source: PIB, The Hindu, The Indian Express, Economic Times, NDTV, Times of India, India Today

