ALTERNATIVE INVESTMENT FUNDS: DRIVING LIQUIDITY IN THE INDIAN MARKET AND REGULATORY REFORMS FOR OPTIMAL IMPACT

ABSTRACT

In 2012, the Securities and Exchange Board of India **(SEBI)** came up with the ***Securities and Exchange Board of India (Alternative Investment Funds) Regulations***, ***2012*** to regulate AIFs in India. From 3.6 lakh crores in 2020 to 8.5 lakh crores in 2023, the commitments raised in Alternate Investment Funds **(AIF)** have been unprecedented. Indian government and regulators like SEBI have been tremendously proactive in making the space lucrative for investors but there have been some long pending demands from the industry like the granting of pass-through status to category III AIFs, exempting GST on carried interest, and granting of 'zero-rated or export status' to the AIFs that could act as a catalyst in contributing towards the growth of the ecosystem.

In this essay, the authors discuss how the Indian economy is likely to experience a substantial increase in both capital inflows and liquidity due to AIFs. They will also delve into the regulatory changes which are required in the AIF industry to further encourage fund pooling and enhance liquidity in the Indian market.

TABLE OF CONTENTS

I. INTRODUCTION

AIFs are private investment channels that collect funds from different domestic and foreign investors. These investments are completely distinguished from traditional forms of investments like mutual funds and trading stocks.[1] Due to its unconventional nature, these investments are mostly preferred by sophisticated investors.[2] The AIFs are divided into three categories in India. The first category consists of start-up or early-stage ventures, the second category consists of private equity funds or debt funds for which no specific incentives or concessions are given by the government and the third category consists of funds such as hedge funds or funds that trade intending to make short-term returns.[3] These category definitions are merely indicative and thus broad enough to cover every kind of AIFs.

[1] CFA Institute, "Introduction to Alternative Investments" [2023] *CFA Institute Program Level I* <https://www.cfainstitute.org/en/membership/professional-development/refresher-readings/introduction-alternative-investments>.
[2] Business Standard Team, "What Are Alternative Investment Funds?" *Business Standard* (December 1, 2022) <https://www.business-standard.com/podcast/finance/what-are-alternative-investment-funds-122120100023_1.html> accessed June 9, 2023.
[3] Securities and Exchange Board of India (Alternative Investment Funds) Regulations 2012 (IND) Reg. 3(4).

Ever since the introduction of AIFs regulations overhauling the erstwhile ***SEBI (Venture Capital Funds) Regulations, 1996***, the AIFs have proven their indispensability in providing liquidity to the Indian market time and again. AIFs commitments saw an increase of 42% in the Financial Year 2022, the majority of the share being in private equity and debt funds.[4] The number of AIFs registered with SEBI has risen from 23 in December 2012 to 1131 as on June 2023,[5] the cumulative capital commitments raised by AIFs stand at INR 8.33 lakh crores as of March 2023, of which INR 3.65 lakh crores have already been deployed by these pooling vehicles.[6]

II. CURRENT REGIME ON LIQUIDATION

Before the introduction of SEBI Regulations on AIF, liquidity was restricted and was the most sensitive part of unregulated investment strategies. It became the beating drum during the painting's head.[7] When SEBI took the matter of AIFs into its hands, it understood the importance of having a reliable and efficient liquidation process for AIFs. It led to several considerations by policymakers for tighter monitoring of liquidity management practices and the requirement of additional disclosures by open-end funds to assess vulnerabilities in a better way.[8]

Indian investors often feel skeptical about how they will be able to liquidate their assets upon winding up (or termination) as it brings up different financial consequences. The current regulations draw a clear distinction between winding up (or termination) and liquidation of an AIF.[9] The latter is expected to take place within a year of the former.[10] The liquidation enables the

[4] Miglani P, "Budget 2023: Why Carried Interest for Alternative Investment Funds Must Be Kept Outside GST Purview" *Times of India* (December 16, 2022) <https://timesofindia.indiatimes.com/business/budget/budget-2023-why-carried-interest-for-alternative-investment-funds-must-be-kept-outside-gst-purview/articleshow/96259114.cms> accessed June 9, 2023.

[5] "SEBI | Registered Alternative Investment Funds" (*SEBI*) <https://www.sebi.gov.in/sebiweb/other/OtherAction.do?doRecognisedFpi=yes&intmId=16>.

[6] "SEBI | Data Relating to Activities of Alternative Investment Funds (AIFs)" <https://www.sebi.gov.in/statistics/1392982252002.html>.

[7] Gupta V, "Need for Enactment of an Act on 'Investment Strategies in Securities' Regulated by SEBI in the Light of Hedge Fund Strategies - Part III" [2013] Taxmann.

[8] Natalucci F, Suntheim F and Qureshi M, "How Illiquid Open-End Funds Can Amplify Shocks and Destabilize Asset Prices" (*IMF*, October 4, 2022) <https://www.imf.org/en/Blogs/Articles/2022/10/04/how-illiquid-open-end-funds-can-amplify-shocks-and-destabilize-asset-prices> accessed June 10, 2023.

[9] Pathak N, Sancheti R and Jain P, "Term, Termination and Liquidation of AIF" (*Nishith Desai Associates*, October 15, 2020) <https://www.nishithdesai.com/SectionCategory/33/Investment-Funds/12/29/InvestmentFundsMonthlyDigest/4238/1.html> accessed June 12, 2023.

[10] Securities and Exchange Board of India (Alternative Investment Funds) Regulations 2012 (IND) Reg. 13(5), 29(7).

distribution of assets in accordance with the distribution mechanism as per the fund documents, after satisfying all the liabilities of the fund.[11]

A. Cross Border AIFs

The AIF has kept itself aligned with the policy of the government to globalize the Indian economy. SEBI has brought several regulations and schemes to ensure that liquidation no longer remains a barrier for cross-border investments through AIF.[12] Taking the example of an overseas investee company, if an AIF liquidates its earlier investment made in that company, the generated revenue received from such liquidation shall be available to all AIFs for reinvestment.[13] To fight the liquidity crunch, it is important to tap the flow of funds from foreign sources to enhance the lending capacities as it involved certain requisite risk-bearing capacities as well as capital for expanding the investment horizon.[14]

The International Financial Service Centre Insurance Office (IIO) continuously monitors the exposures of its investments to market risk, interest rate risk, credit risk, liquidity risk, etc.[15] It specifies that investments shall be made in freely convertible foreign currencies to ensure that liquidity risk is minimized. Over the years, it has been observed that a decline in the liquidity of funds has led to cross-border "spillover effects" in developed countries.[16] These advanced economies have realized this concern and consequently, they are encouraging more trading through central clearing houses which have drastically reduced the risks from liquidity mismatches in open-end funds.

B. Liquidity Boosters

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[11] Securities and Exchange Board of India (Alternative Investment Funds) Regulations 2012 (IND) Reg. 11(2), 29.
[12] Kedia A and Aggarwal R, "Budget 2023 – Expectations of Alternative Investment Funds" [2023] Taxmann.
[13] SEBI, "Guidelines For Overseas Investment By Alternative Investment Funds (AIFs) / Venture Capital Funds (VCFs))" (SEBI 2022) SEBI/HO/AFD-1/PoD/CIR/P/2022/108 <https://www.sebi.gov.in/legal/circulars/aug-2022/guidelines-for-overseas-investment-by-alternative-investment-funds-aifs-venture-capital-funds-vcfs-_62020.html> accessed June 7, 2023.
[14] Naran R, "Foreign Funds in The Stressed Assets Market of India : Special Situation Funds" [2023] Taxmann.
[15] IFSCA, "International Financial Services Centres Authority (Investment By International Financial Service Centre Insurance Office) Regulations, 2022" Notification No. IFSCA/2022-23/GN/REG030 <https://ifsca.gov.in/Legal/Index/ogGPf3wx5GE=> accessed June 7, 2023.
[16] See n 8.

Investment vehicles like AIF which predominantly deal with illiquid assets had made the stakeholders a bit skeptical about its effect on liquidity. When comparing a liquid asset to an illiquid asset, if the liquid asset is less risky, the desire of an impatient investor to hold a larger portion of the liquid asset is somewhat counterbalanced by the inclination to hold more of the riskier asset.[17] These findings carry significant implications here as it helps us explain various well-known puzzles concerning liquidation issue and how investors make decisions regarding investment portfolios.

C. Unliquidated Investments

Selling and distribution of unliquidated investments during the winding-up process has been an area of concern for the Indian market. SEBI has introduced a flexible mechanism to tackle this issue in one of its most recent meetings in March 2023. [18] It approved a proposal to allow selling AIFs that are not sold during the winding-up process due to lack of liquidity to a new scheme of the same AIF depending upon approval of 75% of investors by value. In case investors do not approve this mechanism, the unliquidated investments shall be mandatorily distributed in-specie to investors. In case an investor is not even willing to take the in-specie distribution, such investment shall be written off.

D. Secondary Market Transactions

SEBI has realized that the development of a secondary market is essential for ensuring liquidation in the market. In response, it has come up with several regulations to allow investors an easy exit opportunity and enable price discovery in a demand-supply mechanism in the market.[19] It further introduced regulations to increase the liquidity on the Request for Quote (RFQ) platform of stock exchanges and to enhance the transparency and disclosure pertaining to trading in secondary

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[17] A. Longstaf F, “Asset Pricing in Markets with Illiquid Assets” [2005] Anderson Graduate School of Management, Finance (University of California, Los Angeles) 1104 <https://www.anderson.ucla.edu/documents/areas/fac/finance/longstaff_asset_pricing.pdf>.

[18] SEBI, “SEBI BOARD MEETING” (SEBI 2023) Press Release No. 6/2023 <https://www.sebi.gov.in/media/press-releases/mar-2023/sebi-board-meeting_69552.html> accessed June 6, 2023.

[19] Sukumar V, “Transparency and Transferability: New Age of Alternative Investment Funds (AIFs)” (*mint*, February 21, 2023) <https://www.livemint.com/money/personal-finance/transparency-and-transferability-new-age-of-alternative-investment-funds-aifs-11676971823320.html> accessed June 8, 2023.

markets in Corporate Bonds as per the recommendations of the Alternative Investment Policy Advisory Committee.[20]

AIFs provide leverage buyouts to investors in several ways which ultimately boosts liquidation in the market. An illustration of a leveraged buyout can be, A is a resident in India holding a few equity capital in accordance with ***Overseas Investment Rules, 2022*** (IO). He may transfer such investment in accordance with IO Rules while repatriating all the dues before disinvestment.[21] In recent years, FinTech has transformed the global market including India. Indian investment groups like Edelweiss are on a constant lookout for innovating its FinTech solutions to solve the issues related to illiquidity. These kinds of acquisitions in the Indian market will help grow the investment company's fixed-income advisory business.[22] As AIF deals primarily with illiquid assets, it also provides leverage buyouts to corporate bond dealers.

II. Changes required in the Regulatory of AIFs

While the government has taken steps to promote the growth of AIFs and stimulate the Indian economy, the industry has certain requests to further encourage fund pooling and enhance liquidity in the Indian market:

A. Granting pass-through status to Category III

The current tax framework for Mutual Funds (MFs), Portfolio Management Services (PMS), Real Estate Investment Trusts (REITs), and Infrastructure Investment Trusts (InvITs) follows a "pass-through" principle where the income is taxed directly in the hands of the investors at their applicable tax rates. However, when it comes to AIFs, especially those engaging in public market investments, there is an inconsistency in the tax treatment. AIFs have experienced substantial growth in terms of size, scale, depth of investments, and investor profile, and they continue to

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[20] SEBI, "Transaction in Corporate Bonds through Request for Quote (RFQ) Platform by Alternative Investment Funds (AIFs)" (SEBI 2023) Circular No. SEBI/HO/AFD/PoD/P/CIR/2023/017 <https://www.sebi.gov.in/legal/circulars/feb-2023/transaction-in-corporate-bonds-through-request-for-quote-rfq-platform-by-alternative-investment-funds-aifs-_67744.html> accessed June 11, 2023.

[21] RBI, "Foreign Exchange Management (Overseas Investment) Directions, 2022" RBI/2022-2023/110 <https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=12381&Mode=0#Para13> accessed June 11, 2023.

[22] *B. Renganathan v. Securities and Exchange Board of India* [2021] 127 taxmann.com 894 (SAT - Mumbai).

exhibit significant potential in the years ahead. The AIF Regulation groups them into three specific types as per their investment criteria and regulatory concessions and restrictions being in place for them. AIF have to register themselves under one of the three categories based on their investment strategies/requirement and can seek a change of category only if they haven't made any investments.[23]

Category III AIFs majorly include Hedge funds which are engaged in high-risk and speculative investments, primarily driven by value trading positions. These positions contribute to market liquidity and efficiency, particularly in derivatives and risk-hedging products. They assume risks by acting as counterparties to risk-averse entities. Requiring hedge funds to report positions to all market participants could significantly reduce hedge fund trading, leading to either their exit from the market or a loss of market liquidity. Instead, a system could be implemented where a general report of all hedge funds is sent to the regulator to address potential risks without negatively impacting specific funds. This approach ensures market stability without hindering the growth of hedge funds in developing markets like India.[24]

While Category I and II AIFs are granted pass-through status for tax purposes, similar to other investment vehicles, Category III AIFs currently lack a specific tax regime. Consequently, Category III AIFs, which are commonly structured as trusts, are subject to taxation based on general principles of trust taxation, which can be complex and subject to interpretation. Unlike Mutual Funds, PMS, and Category I and II AIFs, where income is directly taxable in the hands of investors, Category III AIF investors face disadvantages due to the absence of tax pass-through status. This leads to uncertainty in tax payable, potential risks of double taxation, and complexities in tax calculation/reporting.

Category III AIFs typically fulfill tax obligations at the AIF level due to the complexities involved in taxation. Furthermore, the Income Tax Act does not include explicit provisions stating that once income generated at the AIF or trust level is assessed and taxed by the trustee, it cannot be subject to assessment again by the beneficiaries (investors). Since Category III AIFs lack pass-through

[23] SEBI, "Application for Change in Category of the Alternative Investment Fund" (2013) CIR/IMD/DF/12/2013 <https://www.sebi.gov.in/sebi_data/attachdocs/1375870851852.pdf> accessed June 4, 2023.

[24] Guha Roy A and Mazumdar S, "Dynamic Nature of Hedge Funds" [2013] Taxmann.

status, foreign investors in these AIFs are unable to avail themselves of beneficial provisions under tax treaties. Thereby, foreign investors often cannot claim tax credits for taxes paid by the Category III AIF in their home country.[25]

To address this inconsistency, it would be beneficial to extend tax pass-through status to Category III AIFs as well. This adjustment would bring about parity in the tax framework for investors across different categories of AIFs. Furthermore, there is a notable lack of clarity regarding the characterization of income in the hands of Category III AIFs, particularly those employing long-short strategies or frequently churning their portfolios. This ambiguity adds complexity and increases the risk of additional tax liabilities, along with potential interest and penalties. Clarifying the characterization of income for such AIFs would contribute to a more transparent and predictable tax environment.

B. GST ON CARRIED INTEREST

Carried interest refers to such part of a fund's profit that is allocated to its fund manager which is disproportionate to the amount invested by it in the fund but is proportionate to the performance and success of the fund and is typically referred to as 'being carried by the investors.' Historically, under Income Tax, carried interest is treated as 'capital gain' arising from investment in securities whereas, under GST and the erstwhile service tax regime, it was treated as income arising from securities thus being exempt from both GST and service tax. This permits the fund managers to avail a lower rate of capital gains tax and allows the investors not to bear any GST on carry interest paid to the fund managers.[26]

However, the Custom, Excise and Service Tax Appellate Tribunal Bangalore (CESTAT) in ***ICICI Econet Internet and Technology Fund*** **v.** ***CCT,***[27] took a completely different stance and characterized carried interest as a performance fee holding it to be expenditure incurred by the fund thereby it being liable to service tax. The CESTAT has approached the transaction from a different perspective, suggesting that the funds retain certain amounts as consideration for

[25] Krishna Bharathan S and Rao G, "Alternative Investment Funds In India: Unlocking Sophisticated Investment" [2017] SCC Online.
[26] H. Gandhi R, "Tax Parity Required in Treatment of AIF, PMS and Other Similar Modes of Investment" (*The Financial Express*, January 19, 2023) <https://www.financialexpress.com/money/tax-parity-required-in-treatment-of-aif-pms-and-other-similar-modes-of-investment/2953640/.> accessed June 9, 2023.
[27] *ICICI Econet Internet and Technology Fund v. CCT*, Service Tax Appeal No 2900 of 2012 (CESTAT Jul. 2021).

management services within the fund itself. However, it should be noted that the proceeds from exits made by the fund are distributed to investors in accordance with the distribution waterfall, which explicitly states that carried interest will be allocated to the investment manager.[28] Such an arrangement is also permissible under the VCF/AIF Regulations.[29]

The United States and the United Kingdom have different approaches to taxing carried interest. In the US, the duration of the investment determines whether it qualifies for capital gains treatment or is considered ordinary income.[30] Investments held for less than three years are subject to higher tax rates, while those held for three years or longer receive preferential treatment. However, the proposed budget for Fiscal year 2024 aims to repeal tax cuts on carried interest in the US.[31] On the other hand, the UK uses a sliding scale method based on the average holding period of investments. Carried interest in the UK is subject to capital gain tax, with different tax treatments based on the length of the average holding period.[32] The Spring Budget of 2023 allowed a UK taxable person to choose to declare the chargeable gain earlier to align tax liabilities and ensure that double tax relief can be applied.[33] Fund managers in both countries can potentially benefit from tax advantages associated with long-term capital investments.

Therefore, after the CESTAT Ruling, there is an immediate need for clarifications from the Regulator. It is illogical to classify carried interest as a 'service' within the GST framework due to the fundamental fact that carried interest is not a guaranteed payment or compensation for rendered services, which is a necessary condition for an activity to be subject to taxation as a service.[34] Hence, based on this rationale, carried interest should be completely exempt from the scope of GST. The unwarranted uncertainty created by the ruling could discourage the fund managers and

[28] Agarwalla I, Pathak N and Jain P, "Impact of ICICI Econet Decision on the Funds Industry" *Nishith Desai Associates* (October 13, 2021) <https://nishithdesai.com/NewsDetails/4916> accessed June 13, 2023.

[29] SEBI, "Guidelines on Disclosures, Reporting and Clarifications under AIF Regulations" (2014) Circular CIR/IMD/DF/14/2014 <https://www.sebi.gov.in/legal/circulars/jun-2014/guidelines-on-disclosures-reporting-and-clarifications-under-aif-regulations_27118.html?QUERY> accessed June 12, 2023.

[30] Salim H, "Untangling The Knots of Taxation of Carried Interest" [2021] Taxmann.

[31] Mulholland P, "Biden Budget Proposes End to Carried Interest, Higher Tax on Buybacks" (*Chief Investment Officer*, March 9, 2023) <https://www.ai-cio.com/news/biden-budget-proposes-end-to-carried-interest-higher-tax-on-buybacks/> accessed June 14, 2023

[32] Income Tax Act [2007] S. 809EZC c3 (UK).

[33] Kane D, "What the UK's Carried Interest Announcement Means for Fund Managers and Investors -" (*IQ-EQ*, March 27, 2023) <https://iqeq.com/insights/what-uks-carried-interest-announcement-means-fund-managers-and-investors/> accessed June 11, 2023.

[34] Sinha H, "Taxation of Carried Interest | Trilegal Quarterly Roundup" *Trilegal* <https://trilegal.com/magazine/issue1/taxation-of-carried-interest-of-indian-fund-managers-and-rising-uncertainty.html> accessed June 12, 2023.

affect the liquidity in the ecosystem as any ambiguity of tax on fund managers can create ambiguity in the minds of potential investors.

III. Observations & Recommendations

The Hon'ble Finance Minister in Budget 2022 had announced the set-up of an Expert Committee for suggesting tax and regulatory reforms to make PE/VC more attractive. The Expert Committee, headed by the former SEBI chief M. Damodaran, submitted its report in December 2022 to the government.[35] The report submitted by the panel had some key proposals. One of those is the granting of "zero-rated or export status" to India-based AIFs having foreign investors. According to reports, the panel has recommended that fund management services be categorized as deemed exports under ***Section 147*** of the ***Central Goods and Services Tax (CGST) Act, 2017***.[36] This classification would imply that such services are considered to be exported even though they are supplied within the country. It appears to be specifically aimed at fund managers providing services to AIFs in cases where the investment constitutes a foreign investment. Currently, PE/VC funds located in offshore jurisdictions are exempt from the GST. However, the suggested change would potentially impact the tax treatment of fund management services provided to AIFs involving foreign investments.[37]

In several countries, it is common for the GST to be waived or refunded for offshore overseas fund structures that are managed locally. This practice aims to support the growth of a local PE/VC ecosystem, considering that the ultimate investors are situated offshore. However, in the current scenario, AIFs managed by asset managers based in India are subject to a relatively high rate of GST at 18% on the management fees paid to the fund manager.[38] This has led to a cost-inefficient structure that discourages the onshoring of funds, even though the contributors of capital are globally based, and the fund management services qualify for export benefits. The existing tax

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[35] EY, "Tax and Regulatory Updates, in PE/VC Agenda: India Trend Book" *Ernst & Young* (2023) <https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/private-equity/pe-vc-monthly-roundup/2023/03/ey-pe-vc-trend-book.pdf> accessed June 18, 2023.
[36] Central Goods and Services Tax Act 2017, s. 147.
[37] Choudhary S, "Govt Evaluating Measures to Bring down Tax Burden on PE/VCs in India" (*Business Standard*, March 21, 2023) <https://www.business-standard.com/article/economy-policy/govt-moots-framework-to-reduce-tax-burden-on-pe-funds-venture-capitals-123032101150_1.html> accessed June 12, 2023.
[38] Lapsiwala D and Bothra A, "Alternative Investment Funds and Venture Capital Funds - Indirect Tax – Key Provisions" (2018) VI The Chmaber's Journal <https://ctconline.org/wp-content/uploads/pdf/2018/chamber-journal/CJ_October_2018.pdf>.

framework creates challenges for the development of a more competitive and attractive onshore fund management industry in India.

It is indeed crucial for the government to consider treating fund management services provided to AIFs, specifically for foreign investor contributions, as 'deemed exports' under the GST law and classify them as 'zero-rated.' This approach would facilitate the onshoring of funds and fund managers, leading to the creation of high-value jobs within the country. Additionally, it could result in increased tax revenues for the government through additional taxation related to the hiring of consultants, bankers, and due diligence experts locally. Furthermore, the Indian government could explore the possibility of exempting foreign investors engaging with India-registered AIFs from the GST. This exemption would help incentivize and attract foreign capital to anchor funds within India, promoting the growth of the domestic investment ecosystem.

Due to the securitization policies exciting in India, 15% of the NPAs being sold is released in the form of liquid asset and the rest is converted into security receipts which are illiquid.[39] NPAs are like a virus in the system that takes down the liquidity in the capital markets.[40] Sunil Mehta Committee on bad loans proposed "Project Sashakt" which recommended the setting up of a three-tier system: a new Asset Management Company (AMC), an Asset Reconstruction Company, and an alternative investment fund.[41] Presently, there exists no securitization sector in the country where bad banks can sell their NPAs. We suggest the implementation of an active auction system to expedite the asset disposal process, promoting liquidity and facilitating the discovery of fair prices in distressed asset sales markets.

IV. CONCLUSION

AIFs are indeed significant sources of capital for Indian investee entities, and their role in providing liquidity in the Indian economy is paramount. Recognizing their importance, regulatory authorities in India have been progressively widening the investor pool and expanding the investment universe for AIFs. The stakeholders have realized its potential in liquidation to the Indian market. This is evident from its reaction to several hurdles which AIFs have brought to this

[39] See n. 14.
[40] Jain M and Goel U, "Analysis of Bad Banks As An Alternative Tool of Recovery" [2021] Taxmann.
[41] "A Study on NPAs Of Selected Private & Public Sector Banks In India" [2022] Indian Journal of Finance and Banking 129 <http://dx.doi.org/10.46281/ijfb.v9i1.1610>.

point. Still, a few lacunas are there in the regulations which need to be filled. The AIF is an alien concept for the Indian market which means that even the government and regulators are not sure of how successful and fruitful these funds can become. Ensuring and boosting liquidation as has been previously discussed in this essay is going to be a big challenge for them. It won't be inappropriate to say that the role of AIF in bringing liquidation to the Indian market is going to be huge but efforts in the right direction is going to decide the fate for the same.

The Indian government has shown great initiative in creating an attractive environment for investors. However, the pending industry demands including the granting of pass-through status to category III AIFs, exempting GST on carried interest, and providing 'zero-rated or export status' to AIFs as discussed by authors in the paper could catalyze fostering the growth of the ecosystem.