noonum

DeepSeek Announcement & Latent Systematic Risk in the IT Sector

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Algorithmic Computer Science is a strange and mysterious discipline. Researchers in this field can often spend decades trying to solve a problem that looks unsolvable, make a breakthrough one fine day, and then make such rapid advancements to make the entire affair look trivial in retrospect. This has been playing out in real time in the past few years in the context of Generative AI, particularly in the domain of Large Language Models (LLM).

OpenAI revealed the first version of ChatGPT on November 30th, 2022, that surprised business leaders, investors and pretty much anyone with access to the internet. By its very nature, systematically processing linguistic unstructured input is not only difficult but also open to ambiguous interpretation and an endless combination of potential queries. The initial version of ChatGPT and its subsequent incarnations have demonstrated unprecedented ability to operate with language-based inputs, aggregate & summarize information related to complex queries, create audio & video content, and even write code! The “magic” of ChatGPT relies on models with billions of parameters that consume a considerable amount of power and run on specialized chips. As expected, the announcement of ChatGPT ushered an arms race within the corporate sector with almost every business entity repositioning itself either as a beneficiary or a facilitator of the AI driven technological disruption.

The second jolt in this saga came on January 27th, 2025, when a relatively low-profile firm, DeepSeek, released its own version of LLM which is not only competitive with ChatGPT but can operate at a fraction of the cost. While netizens have debated the credibility of the claims made by DeepSeek and cost savings therein, the idea that LLMs can operate with significantly lower operating costs is already rooted in investors’ minds. Until DeepSeek’s announcement, markets had treated the beneficiaries and facilitators of AI driven disruption as a cohort and assigned them astronomical valuations based on future growth prospects. DeepSeek’s announcement shattered that monolithic image and highlighted fundamental differences between companies that are likely to benefit from AI transformation (AI Beneficiaries) and those that will facilitate the said transformation (AI Suppliers).

Specifically, DeepSeek’s announcement created top line (revenue growth) uncertainty for AI Suppliers and margin uncertainty for AI beneficiaries with risks skewed to the downside for the former and upside for the latter. We analyzed this phenomenon by building AI Beneficiaries and Supplier indices using Noonum and examined these indices through Omega Point’s Thematic Package. Our analysis has a dual focus.

- Understanding the extent to which these indices can explain residual returns, namely, returns that are not explained by traditional risk factors such as Value, Momentum, Quality, etc.

- Identifying how the risks embedded in these AI indices have evolved over the past year.

Noonum platform is designed to seamlessly translate investment objectives stated in plain English into investable indices. Exhibits 1 and 2 show the investment objectives that were used to create the AI Beneficiaries and AI Supplier indices, respectively.

This investment framework focuses on beneficiaries of Artificial Intelligence (AI) technologies, encompassing innovations that are rapidly transforming our world. The strategy prioritizes investments in AI Service Providers and Enhanced Product Developers that leverage AI to improve existing services or create new products. Examples include:

AI-powered Service Enhancement: Companies using AI to improve efficiency and effectiveness in areas like customer support and content moderation.

AI-driven Product Development: Companies integrating AI into products to enhance functionality and lower costs, such as automation and robotics systems.

Exhibit 1: Investment Objective for Noonum AI Beneficiaries Index

This investment framework focuses on Artificial Intelligence (AI) technologies, encompassing innovations that are rapidly transforming our world. The strategy prioritizes investments in two tiers:

Tier 1: Core AI Developers This tier comprises companies that develop the foundational AI technologies, including: Software: Companies creating AI algorithms and machine learning models. Hardware: Companies producing the hardware necessary to run AI software and models (e.g., specialized processors, high-performance computing systems).

Tier 2: AI Infrastructure and Support This tier consists of companies that provide critical infrastructure and support to Tier 1 companies. This includes Hardware Component Suppliers: Companies supplying essential components for AI hardware, such as GPU manufacturers. Data Center Infrastructure: Companies specializing in building and maintaining data centers, which are crucial for AI development and deployment. Specialized Manufacturing: Companies manufacturing precision parts essential for AI-powered systems, such as robotics. Power Generation: companies that supply electricity to power data centers which in turn run inferencing & reasoning algorithms. Real Estate: companies that supply specialized real estate for hosting large machines for AI computations with unique cooling requirements.

This tiered approach ensures a comprehensive investment strategy that captures the full breadth of the AI value chain, from fundamental research and development to the widespread application and deployment of AI solutions.

Exhibit 2: Investment Objective for Noonum AI Suppliers Index

These indices are weighted by Noonum's "exposure" score, a proprietary metric that uses LLM based tools to ascertain the relevance of the investment objective to various stocks within the index. To assess the risk characteristics of these indices, we ran the following experiment. Using Omega Point's Thematic Package, we generated historical betas for various US securities to the AI Supplier and Beneficiary indices after controlling for the usual style and industry factors. Thereafter we ran daily cross-sectional regressions to determine the relationship between residual returns and historical betas. The cross-sectional regressions were inverse variance weighted and were run separately for various economic sectors as determined by Yahoo Finance.

Exhibits 3 and 4 show the daily R2 of these regressions for stocks in the Information Technology sector using the AI beneficiaries and Supplier indices, respectively. It is interesting to note that these indices can explain roughly 1-2% of the residual returns on average and can have considerably higher R2 on certain days. While 2% explanatory power might seem insignificant on its own, it needs to be examined in the context of risk adjustments in our experimental setup that already control for a variety of traditional long-term style & industry factors. Exhibits 3 and 4 suggest that AI Beneficiaries and Supplier themes were being priced in the market like systematic risk factors.

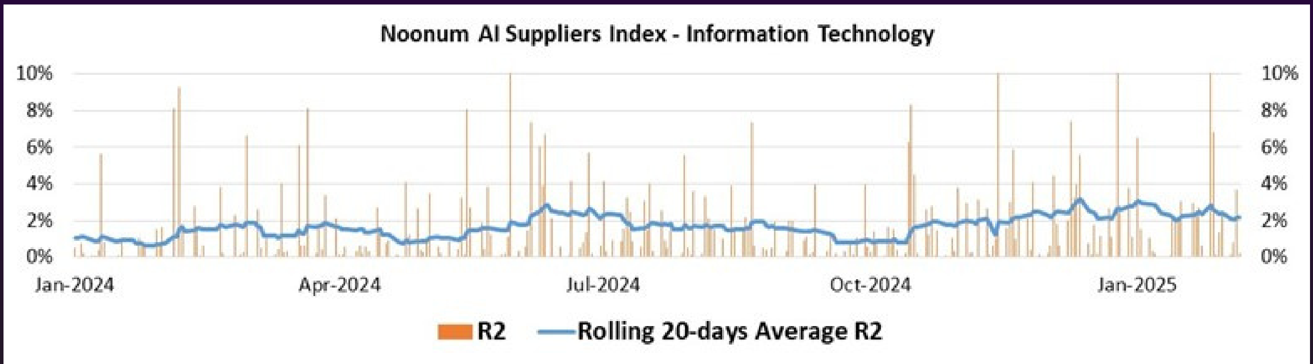

Exhibit 3: Explanatory Power of Noonum AI Suppliers Index
Source: Yahoo Finance; Noonum; Omega Point

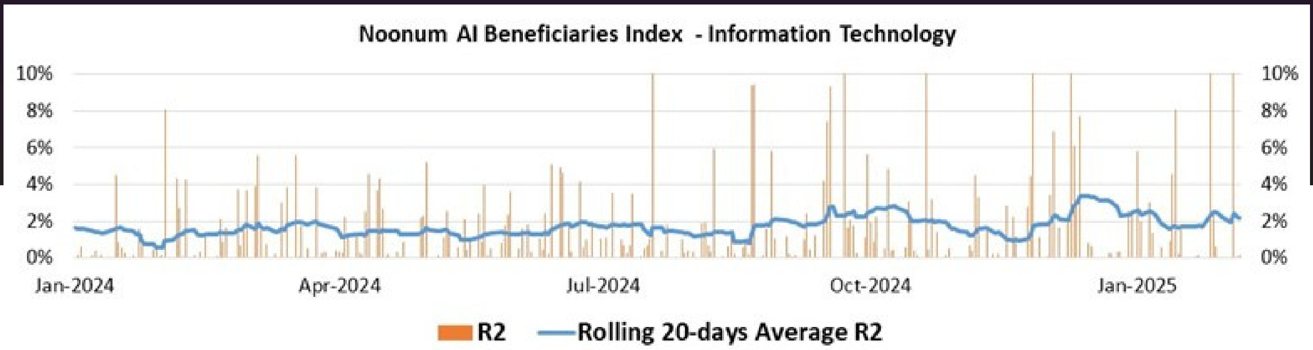

Exhibit 4: Explanatory Power of Noonum AI Beneficiaries Index
Source: Yahoo Finance; Noonum; Omega Point

We obtained independent validation of this hypothesis using Omega Point's Thematic Strength Indicator (TSI) metric (cf. Exhibits 5 and 6). TSI is a model agnostic measure of the systematic risk of a theme and represents the average explanatory power of a theme in explaining residual stocks returns. TSI-Z is a Z-scored version of TSI that ranks more than thirteen hundred themes; a TSI-Z score more than two suggests that the theme is systematically important to the cohort of stocks under consideration. Exhibits 5 and 6 show the TSI of AI Suppliers and Beneficiaries indices, respectively for stocks within the Information Technology sector. As demonstrated in the charts, a high TSI-Z score corroborates our hypothesis regarding the latent systematic risk associated with AI Supplier and Beneficiaries themes. While the actual DeepSeek announcement happened in January 2025, the upward momentum in the TSI score starting in 2024-Q4 suggests that the market had already started to price in the uncertainty associated with this development much earlier.

Exhibit 5: Noonum AI Suppliers Index TSI
Source: Yahoo Finance; Noonum; Omega Point

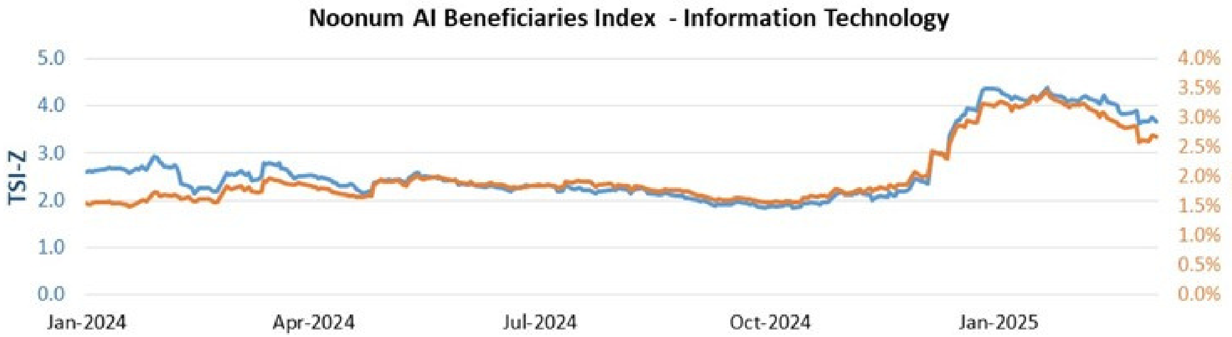

Exhibit 6: Noonum AI Beneficiaries Index TSI
Source: Yahoo Finance; Noonum; Omega Point

To better appreciate the evolving systematic risk characteristics of AI themes, we generated a "term" curve of TSI (cf. 7 - 10) by varying the lookback period that is used to compute the metric and compared the term curve as of 31st January of 2024 and 2025; the default version of TSI reported in Exhibits 5 and 6 uses a lookback period of 252 trading days.

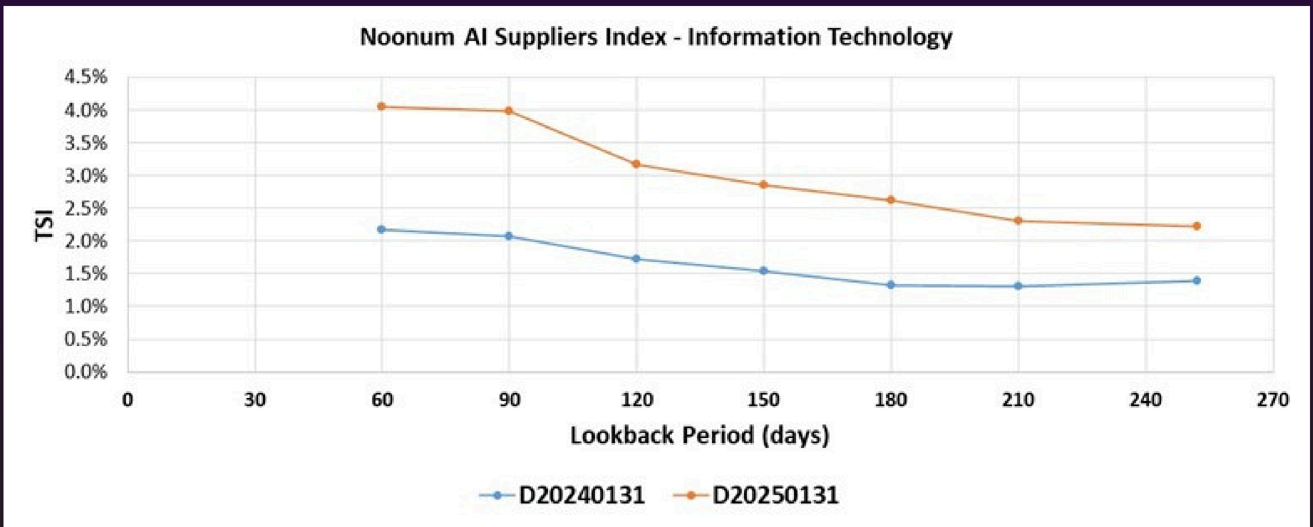

Exhibit 7: TSI Term Curve for Noonum AI Suppliers Index
Source: Yahoo Finance; Noonum; Omega Point

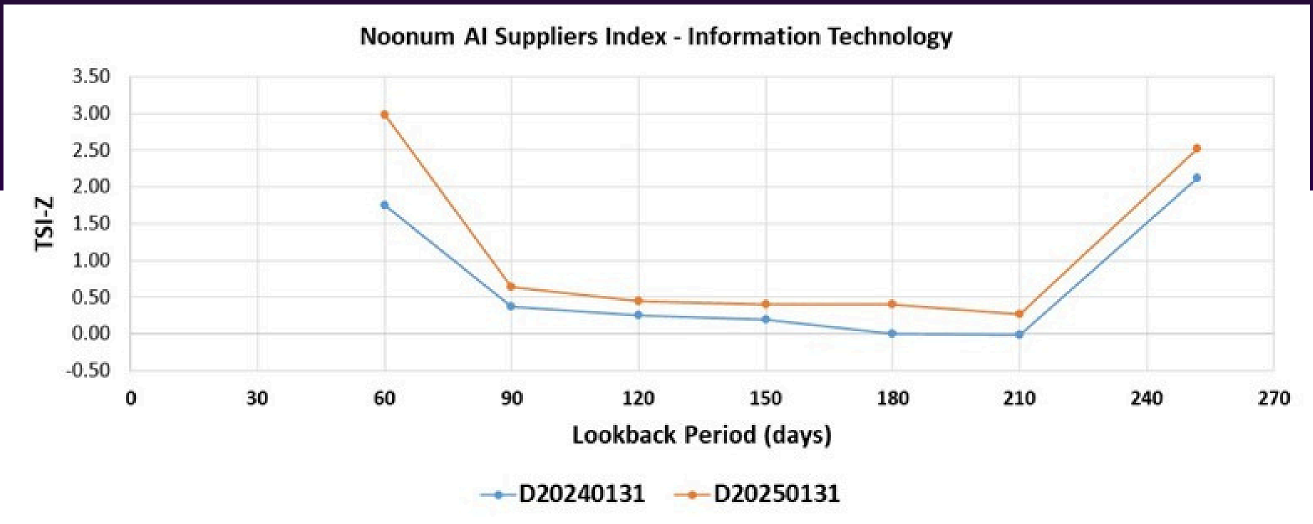

Exhibit 8: TSI-Z Term Curve for Noonum AI Suppliers Index
Source: Yahoo Finance; Noonum; Omega Point

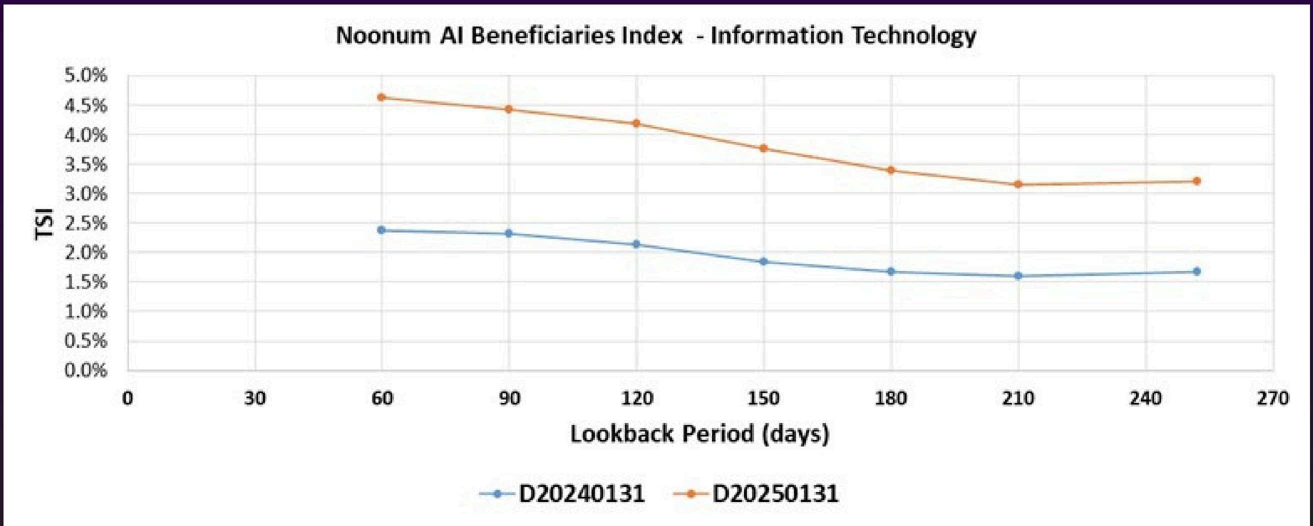

Exhibit 9: TSI Term Curve for Noonum AI Beneficiaries Index
Source: Yahoo Finance; Noonum; Omega Point

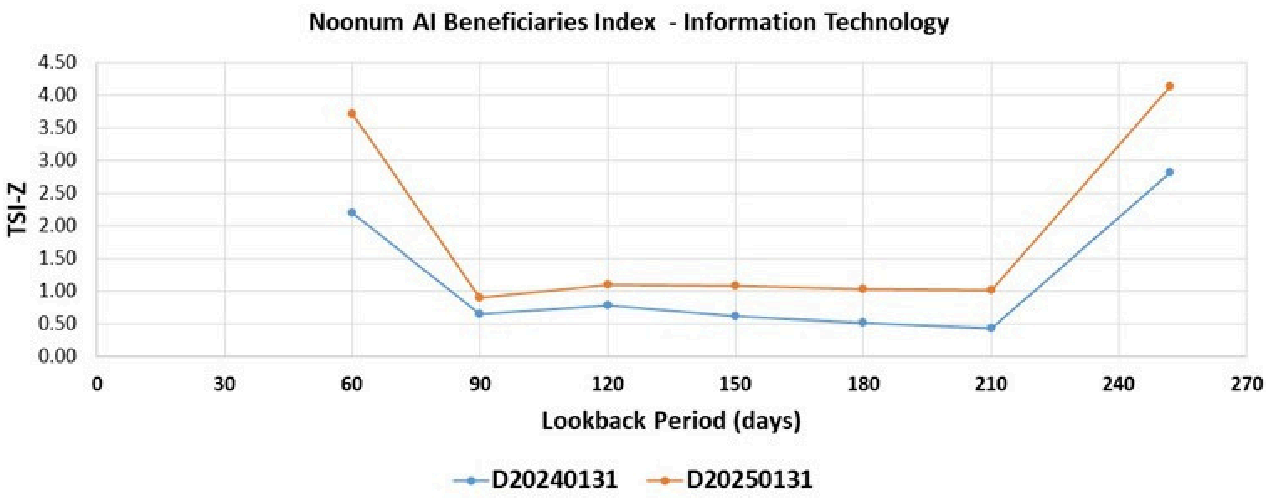

Exhibit 10: TSI-Z Term Curve for Noonum AI Beneficiaries Index
Source: Yahoo Finance; Noonum; Omega Point

The parallel upward shift and steepening of the TSI term curve is noteworthy. Among other things, this suggests that the latent systematic risk associated with AI themes has increased in recent months. Similarly, the upward shift at the short end of the TSI-Z term curve captures the effect of the DeepSeek announcement on the systematic risk characteristics of AI Supplier and Beneficiaries themes.

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