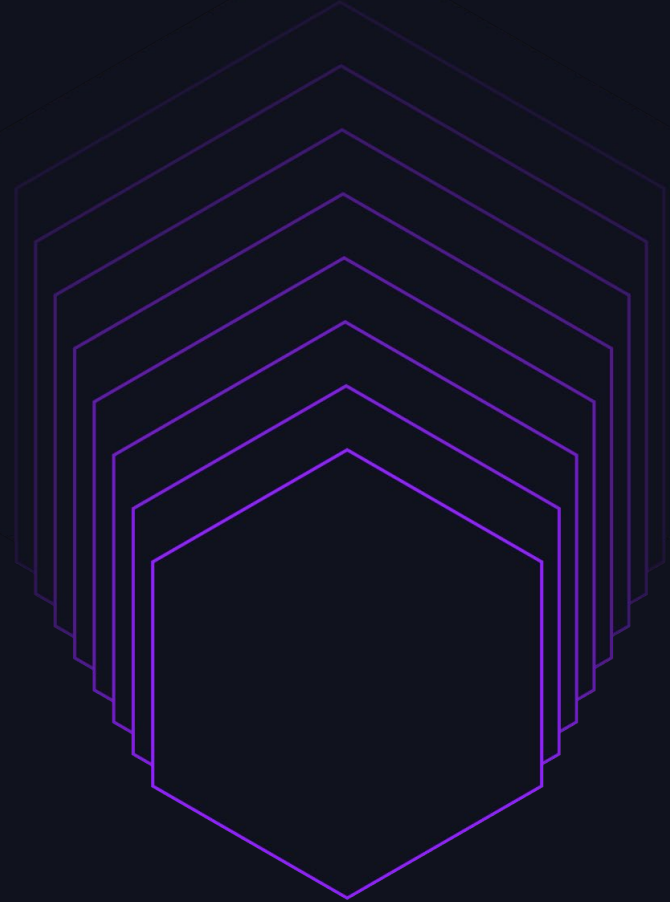


# BLOOMBERG SUPPLY CHAIN DATA: INTELLIGENCE THROUGH VISIBILITY

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Michael Beal – Head of Data Science, North America  
Michael Tam – Product Manager, Quant Research  
Solutions



Symbol	Price	% Chg	1 Mo %	3 Mo %	YTD %	1 Yr %
<b>Bottom Performers (10)</b>						
EQUIX	163.23	+36%	7.32%	+5.96%	+7.29%	+13.60%
KIM	165.72	+6%	11.01%	+8.13%	+10.40%	+24.56%
EXR	142.80	+7%	7.17%	+9.48%	+7.54%	+23.01%
DLR	1373.88	+7%	6.91%	+3.89%	+6.25%	+9.48%
SBAC	116.92	+7%	8.06%	+3.89%	+10.05%	+7.67%
CBRE	194.39	+7%	3.76%	+9.86%	+4.27%	+21.27%
AMT	144.39	+9%	8.69%	+10.05%	+8.00%	+14.57%
WY	1176.27	+1.20%	5.94%	+9.86%	+6.03%	+9.50%
IRM	125.67	+1.32%	12.80%	-2.96%	+8.74%	+6.03%
WELL	136.10	+1.33%	4.96%	+1.70%	+7.00%	+4.38%
ARE	175.07	-1.76%	-18%	-1.2%	-6%	-3.25%
PSA	1125.64	-5%	11.28%	+14.50%	+10.86%	+26.41%
CCT	1206.15	-4%	8.26%	+16.34%	+8.66%	+26.55%
VNO	1114.05	-12%	4.94%	+11.40%	+11.40%	+22.95%
<b>Remaining Securities (12)</b>						
HCP	166.46	+14%	17.36%	+11.40%	+17.20%	+19.61%
SPG	130.49	+17%	11.33%	-3.28%	+5.36%	+22.95%
PLD	1177.95	+18%	8.25%	+18.31%	+17.20%	+19.61%
MAC	166.34	+25%	10.15%	+15.26%	+8.18%	+33.55%
HST	146.39	+31%	2.25%	+3.64%	+8.90%	+8.14%
DRE	179.59	+39%	5.47%	+10.13%	+2.00%	+11.36%
FRT	129.13	+4%	9.27%	+15.01%	+9.08%	+38.45%
ESS	129.13	+4%	5.81%	-1.06%	+2.98%	+5.88%
AIV	129.215	+5%	13.44%	+2.98%	+12.99%	+15.15%
VTR	1264.40	+5%	7.53%	+7.19%	+7.19%	+12.72%
AVB	148.34	+5%	5.40%	-10.03%	+5.46%	+11.20%
SSREIT	162.82	+5%	13.89%	+4.32%	+7.19%	+12.72%
REIT	187.84	+5%	5.40%	-10.03%	+5.46%	+11.20%
<b>Top Performers (10)</b>						
SLG	1113.70	+4%	5.93%	+5.18%	+4.94%	+7.25%
DG	156.51	-4%	7.80%	+23.57%	+5.94%	+7.76%
FL	1289.78	-12%	-12%	-5.50%	-18.03%	+6.17%
ULTA	125.65	-12%	-12%	-5.50%	-18.03%	+6.17%
GPS	1153.74	-3%	1.27%	-3.05%	-3.70%	+18.93%
EXPE	125.66	+6%	10.90%	+6.65%	+9.45%	+28.50%
AAP	1117.08	+6%	5.86%	+13.51%	+7.83%	+4.00%
M	1815.15	+6%	8.62%	+10.56%	+9.89%	+20.91%
BKNG	134.13	-4%	5.93%	+5.18%	+4.94%	+7.25%
EBAY	128.21	-3%	7.80%	+23.57%	+5.94%	+7.76%
AMZN	11620.00	-3%	-12%	-5.50%	-18.03%	+6.17%
<b>Bottom Performers (10)</b>						
AMZN	11620.00	-3.03%	9.44%	-1.54%	+7.96%	+14.97%





SUPPLY CHAIN DISRUPTIONS CAN  
COST THE AVERAGE ORGANIZATION  
**45% OF A YEAR'S PROFITS** OVER  
THE COURSE OF A DECADE

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Source: McKinsey and Company

# SUPPLY CHAIN SHOCKS CAN HAVE MAJOR FINANCIAL CONSEQUENCES

Net Present Value (NPV) of Expected Losses Over 10 Years as a Result of Supply Chain Disruptions (% of Annual EBITDA)



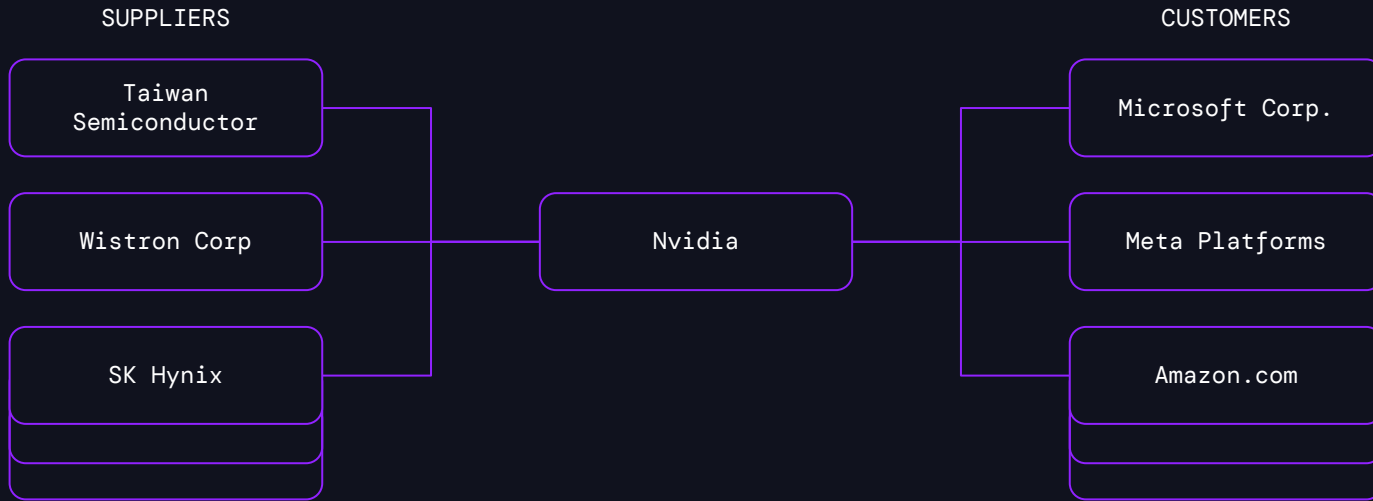
Source: McKinsey and Company Global Institute Analysis





# SUPPLY CHAIN VISIBILITY THROUGH DATA

100,000+ companies | Relationship Quantification | History Since 2006  
Source Transparency On All Relationships



# LEVERAGING LLMs TO EXTRACT SUPPLY CHAIN RELATIONSHIPS

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- Surfacing supply chain data requires a significant amount of manual effort
- When thinking through how to solve this challenge, Bloomberg fine-tuned a large language model to programmatically extract supply chain relationships from public documents
- Human-in-the-loop processing provides our team with detailed annotations and ensures data quality remains high
- The use of LLMs allows us to surface more unique relationships and collect data more efficiently

Prompt:

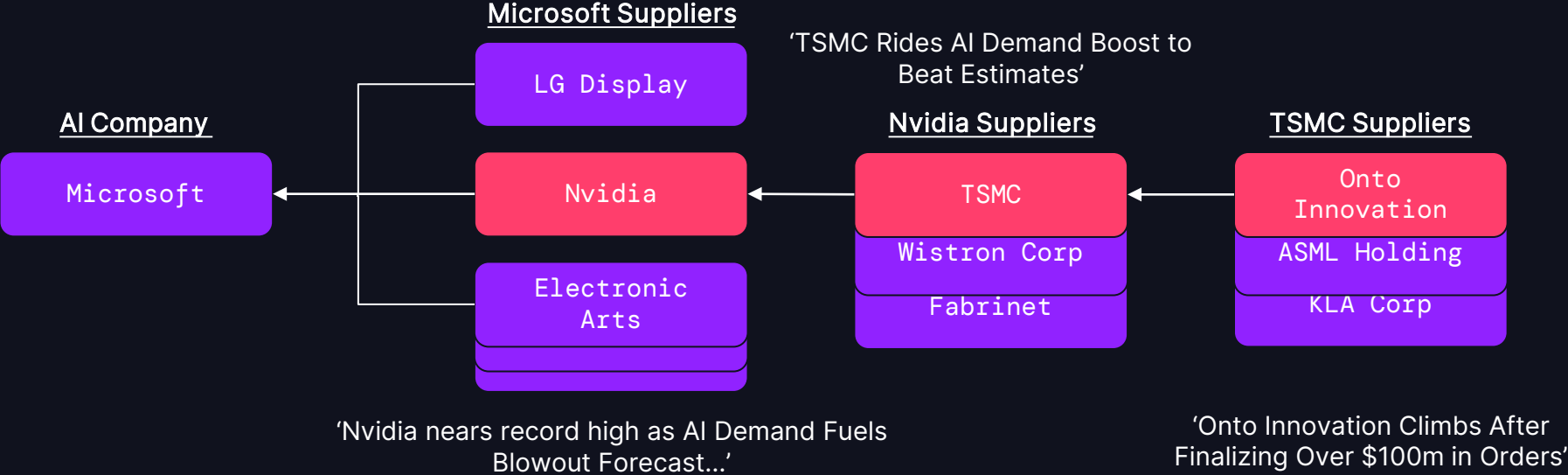
**Context:** "Ati Motors counts Bosch, TVS Motors, CEAT, and Hyundai amongst some of its key customers."



**Question:** Can you infer using only the CONTEXT that Ati Motors supplies or provides a service for Bosch?

Answer "yes" or "no"

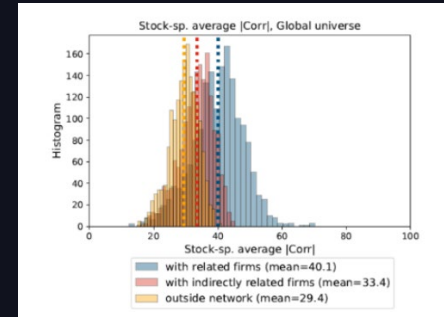
# UNCOVERING INVESTMENT OPPORTUNITIES IN COMPONENT SUPPLIERS





# MODELING THE SPILLOVER EFFECT OF LIQUIDITY SHOCKS IN SUPPLY CHAINS

- The **correlation of equity returns** between economically related firms in the supply chain is stronger than that of random pairs of firms in the same sector
- There are **spillover effects of news among related firms**; if news about a stock's related firms intensifies, news about that stock also intensifies
- Volatility and volume **forecasts can be improved** using supply chain data



	2017	2018	2019	2020
CSI + HSI	72%	58%	61%	54%
TOPIX	56%	61%	63%	55%
S&P	73%	78%	81%	76%
STOXX	73%	76%	80%	78%

Table 5: Percentage of stocks in each index for which average rank correlation between stock-specific news arrival intensity and related firms' news arrival intensity from the day before is positive. (For TOPIX 500 in 2020, this is the same as the percentage of the left-most distribution in Figure 7 that lie in the positive region.)

Source: Goldman Sachs

# MANAGING SUPPLY CHAIN DISRUPTIONS

Leveraging the Bloomberg data ecosystem for supply chain risk sensing capabilities

## Client Question

How do I monitor supply chain disruptions that may impact Cooper Co.'s operations and earnings?

Are any of Cooper Co.'s suppliers facing financial trouble?

Are Cooper Co. and its suppliers exposed to [natural disaster] based on its factory locations?

## Bloomberg Data

### Real-Time News Headlines

Cooper share price falls 2.1% at open...  
Cooper board announces a share buyback...  
**Cooper supplier's factory burns down...**  
Cooper competitor Casper launches new...

Cooper Co.

### Probability of Default

Cooper Co. Suppliers:  
Vision Co. 0.0002%  
Rune Industries 0.01%  
Align 0.03%  
**Michael's Metals 22%**  
Dreamscape Tech 0.1%

### Factories Data

% of factories in the U.S., 38%  
**in Japan, 11%**  
in China, 9%

% of supplier factories in the U.S., 27%  
**in Japan, 39%**  
in China, 13%

Note: Fictional scenario for demonstration purposes only.

# BLOOMBERG INTEGRATION WITH DATABRICKS

Providing comprehensive data solutions for investment research, trading, risk, and operations seamlessly on the Databricks platform

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1 High-quality data for ingestion into models and applications

Unified data model to ensure interoperability of datasets

Models can be dependent on clean data

2 Data for Programmatic Analysis and Investment Research

Point-in-time data helps clients avoid forward-looking biases

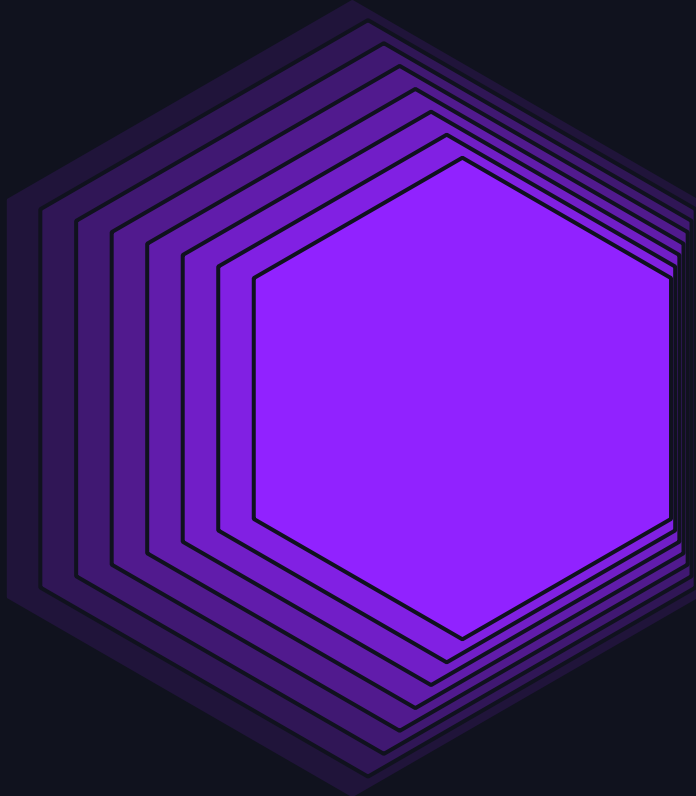
Deep history enables backtesting

3 Integration with Databricks' Lakehouse Platform

Delivering data to our customers where they are

One architecture for integration, storage, analytics, AI and more

# DEMO



Curious to learn more?  
Scan QR to request a demo!



Email us at [eprise@bloomberg.net](mailto:eprise@bloomberg.net)

# DATA+AI SUMMIT