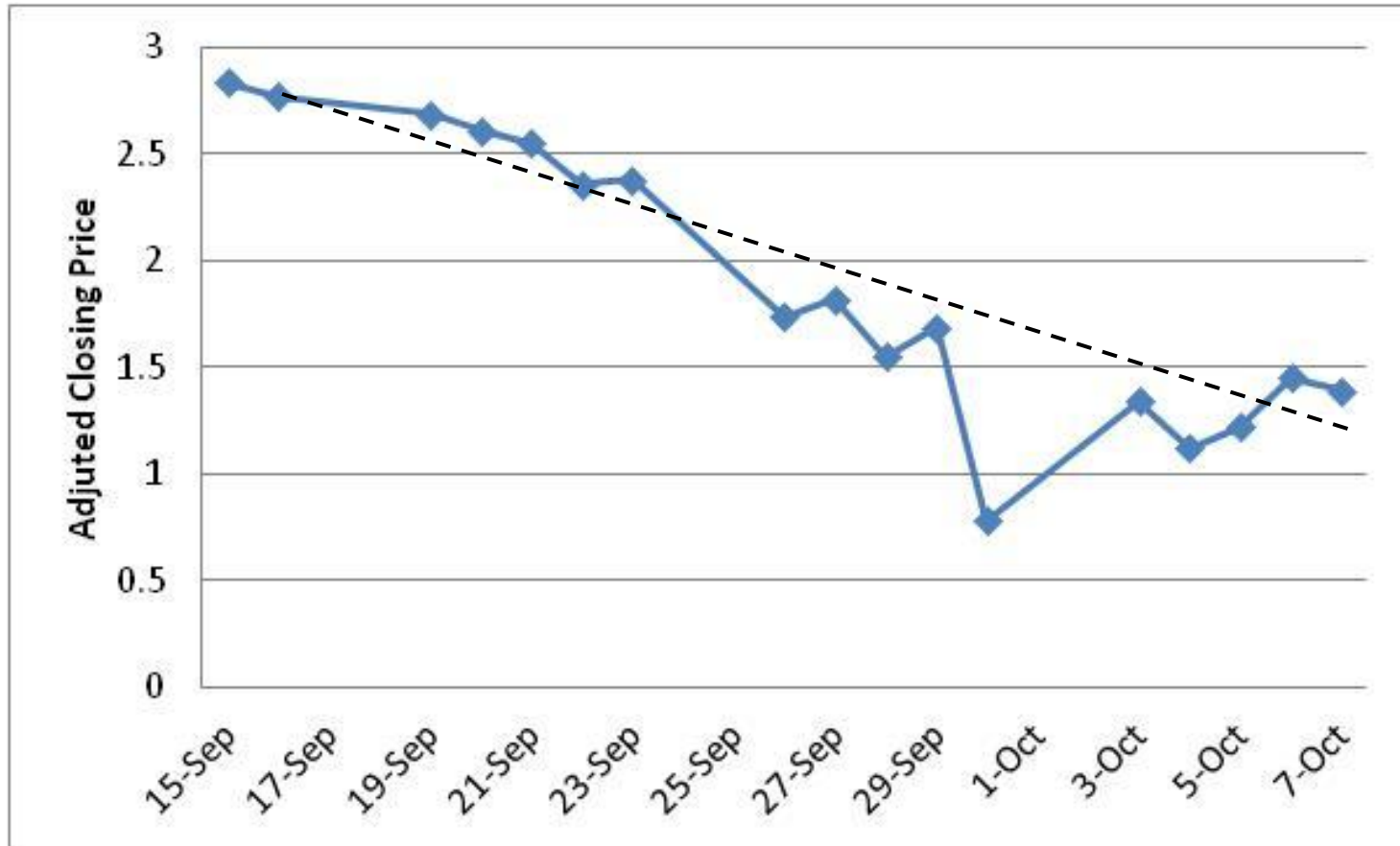# Market Sensing Using a Graph Database

Sensing the Effect of News Media on Financial Markets

WSJ reported on 09/30 at 2:19 EDT that Eastman-Kodak hired Jones Day for restructuring advice

By 2:24 pm, it was off by 28%

By end of trading, it was off by 54%

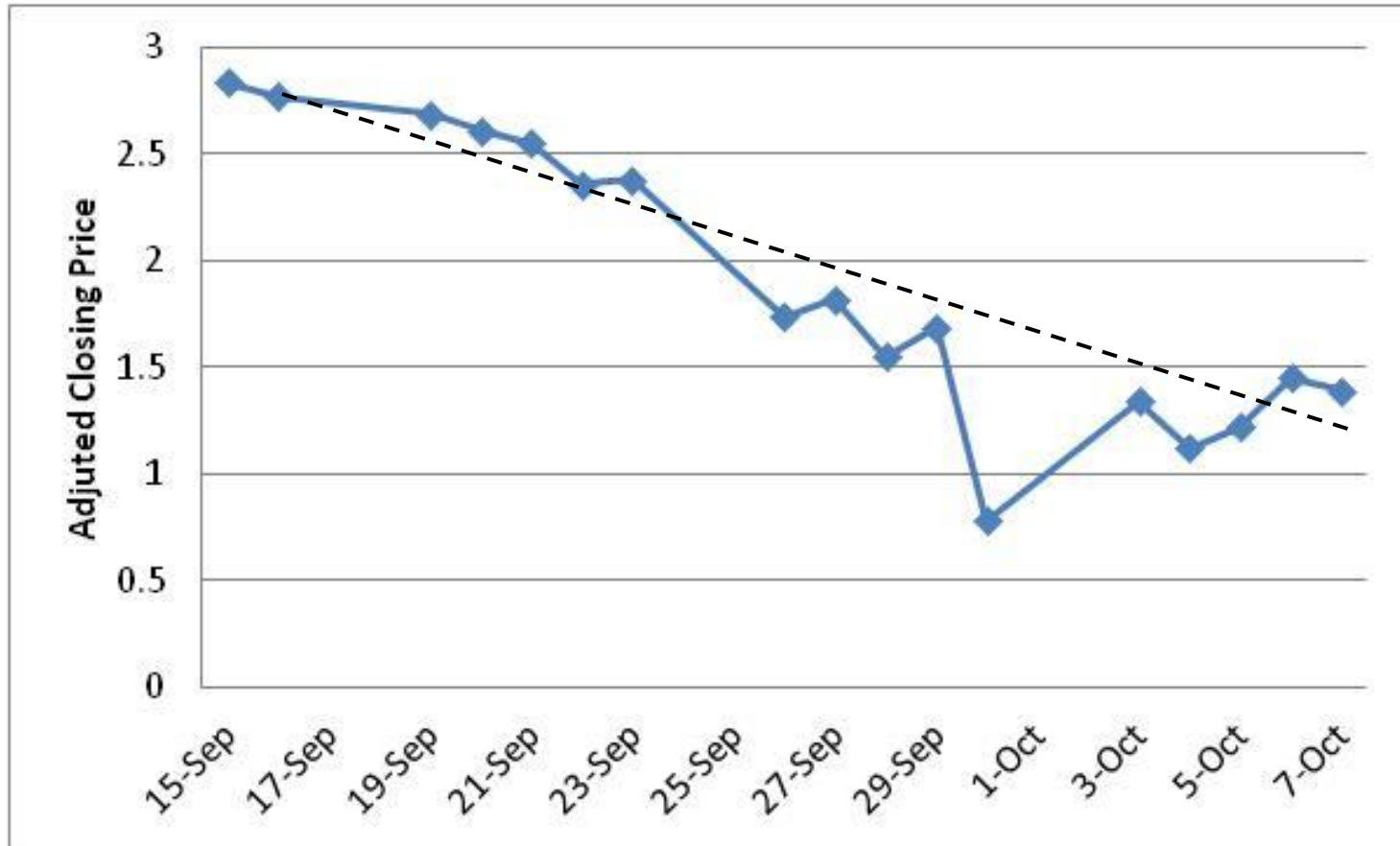# Sensing the Effect of News Media on Financial Markets

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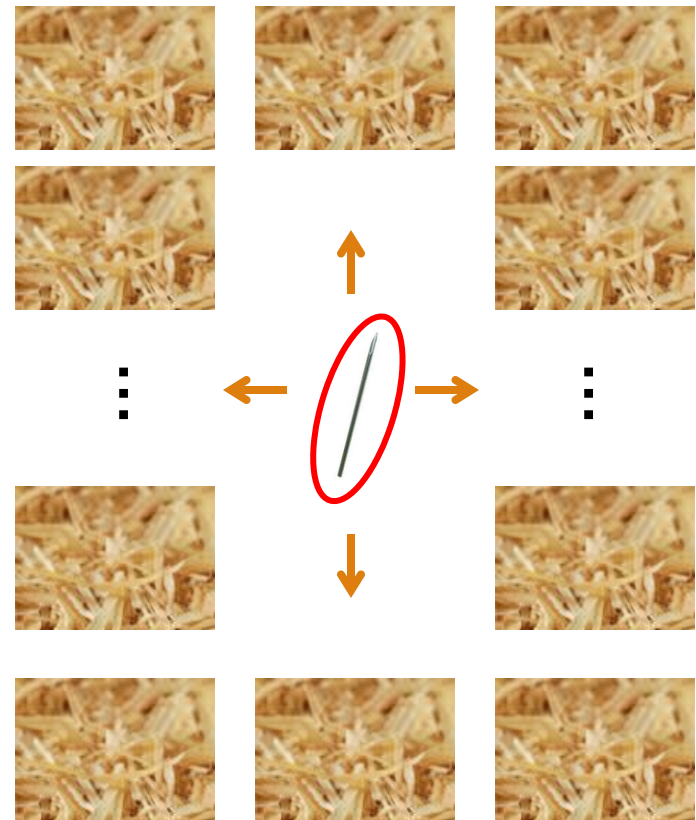## Market Sensing is a large-scale graph analytics problem

Current Big Data approaches are based on SEARCH…

SEARCH: Needle-in-a-Haystack

- **We know what we're looking for**
- **We can break up the problem**

Current Big Data Approaches:
Partition and Scale out

YarcData focuses on DISCOVERY – not search

Needle-in-a-Needlestack

We do not know what we are looking for

We cannot break up the problem

Gartner

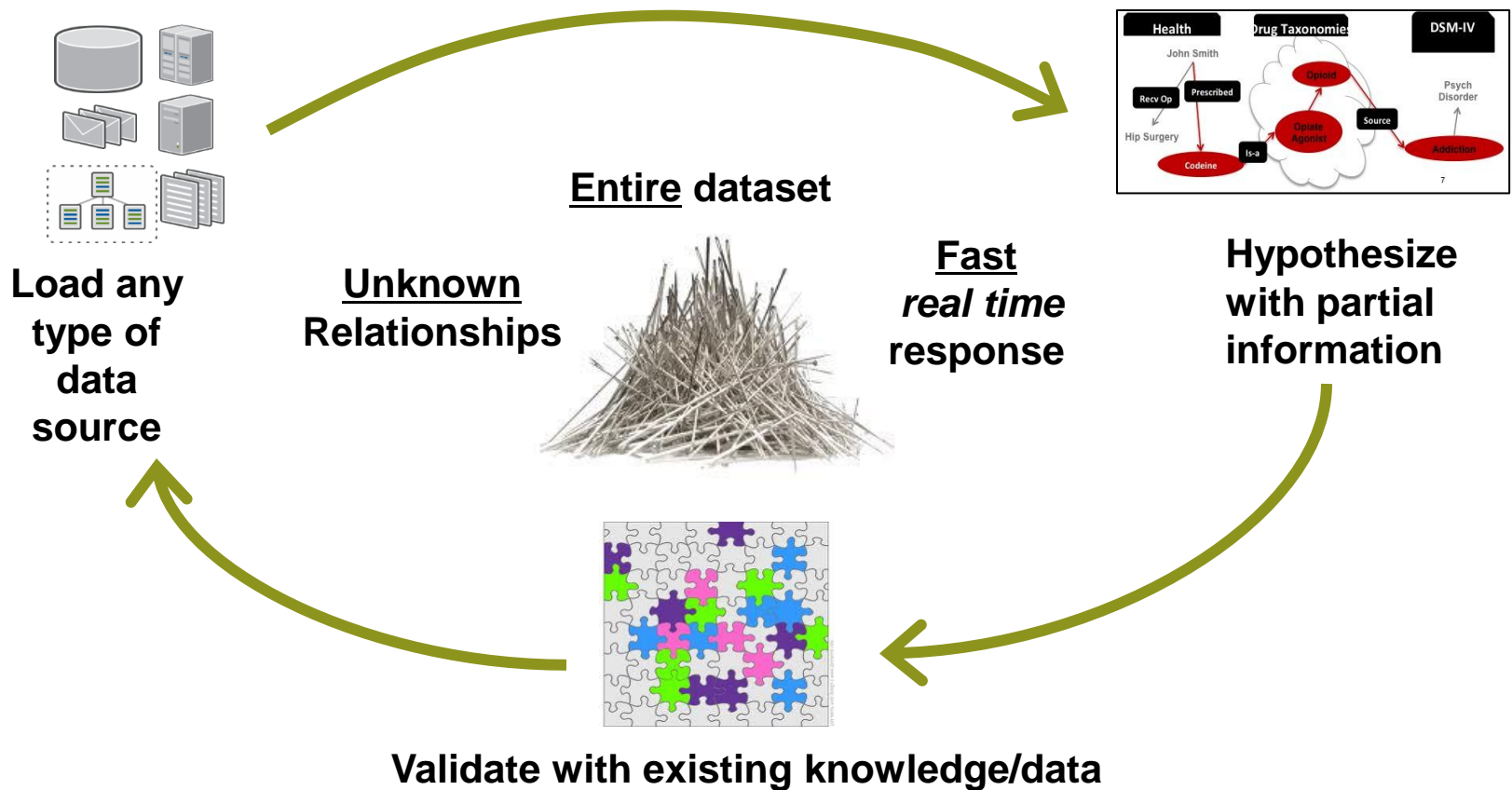**Current Big Data Approaches** ≠ **Discovery**

"….when the purpose of the system is discovery of relationships, not extracting information from already known interrelations, achieving satisfactory performance is difficult."

"When the relationships among data are mysterious, and the nature of the inquiries unknown, no meaningful scheme for partitioning the data is possible."

(Source: Gartner Report, YarcData's uRiKA Shows Big Data Is More Than Hadoop and Data Warehouses, September 2012)

DISCOVERY through FAST hypothesis validation

Load any type of data source

Unknown Relationships

Entire dataset

Fast *real time* response

Hypothesize with partial information

Validate with existing knowledge/data

"In the amount of time it takes to validate one hypothesis, we can now validate a 1000 hypotheses – massively improving our success rate and systematizing serendipity." **(YarcData Govt Customer)**

YarcData technology enables Big Data Graph Analytics

Gartner

Purpose-built Appliance

Native Graph Database
optimized for...

Large Shared Memory
(Up to 512 TB)

Multi-threaded ASIC
(128 hw threads/ASIC)

"Employing a single systemwide memory space means data does not need to be partitioned, as it must be on MapReduce-based systems like Hadoop. Any thread can dart to any location, following its path through the graph, since all threads can see all data elements. This greatly reduces the imbalances in time that plague graph-oriented processing on Hadoop clusters."

"A unique approach to processor design, YarcData's Threadstorm chip, shows no slowdown under the characteristic zigs and zags of graphoriented processing... the data is held in-memory in very large system memory configurations, slashing the rate of file accesses."

Market Sensing is a Large Graph Problem
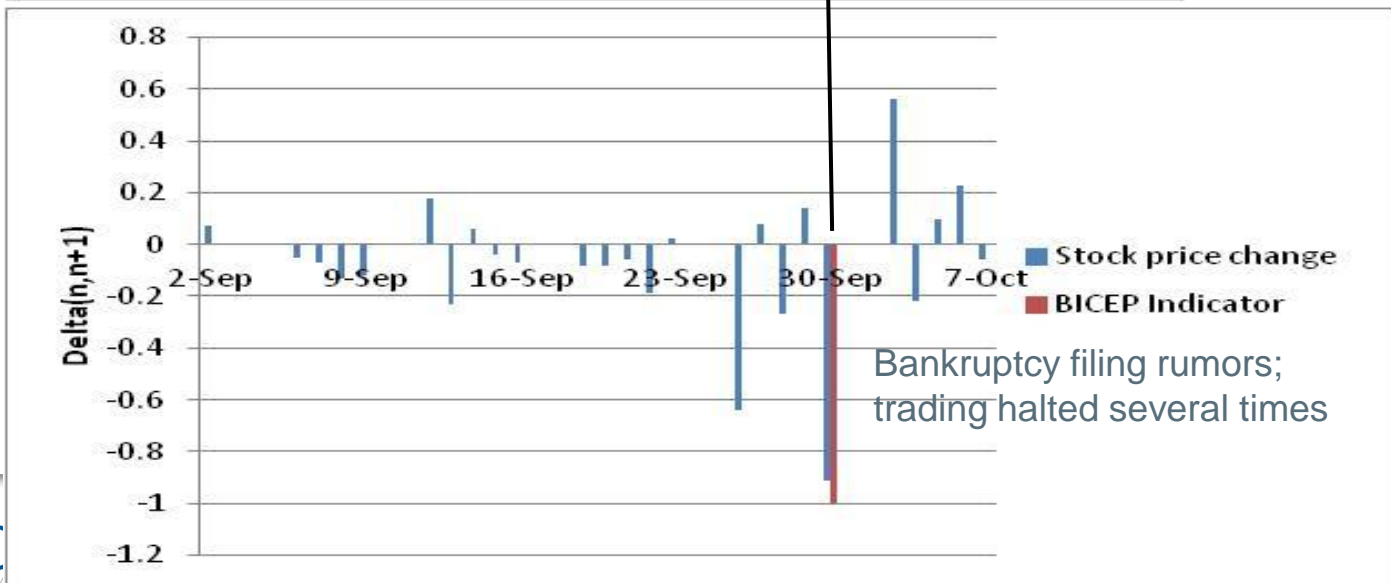

Positive Indicators
Negative Indicators

8
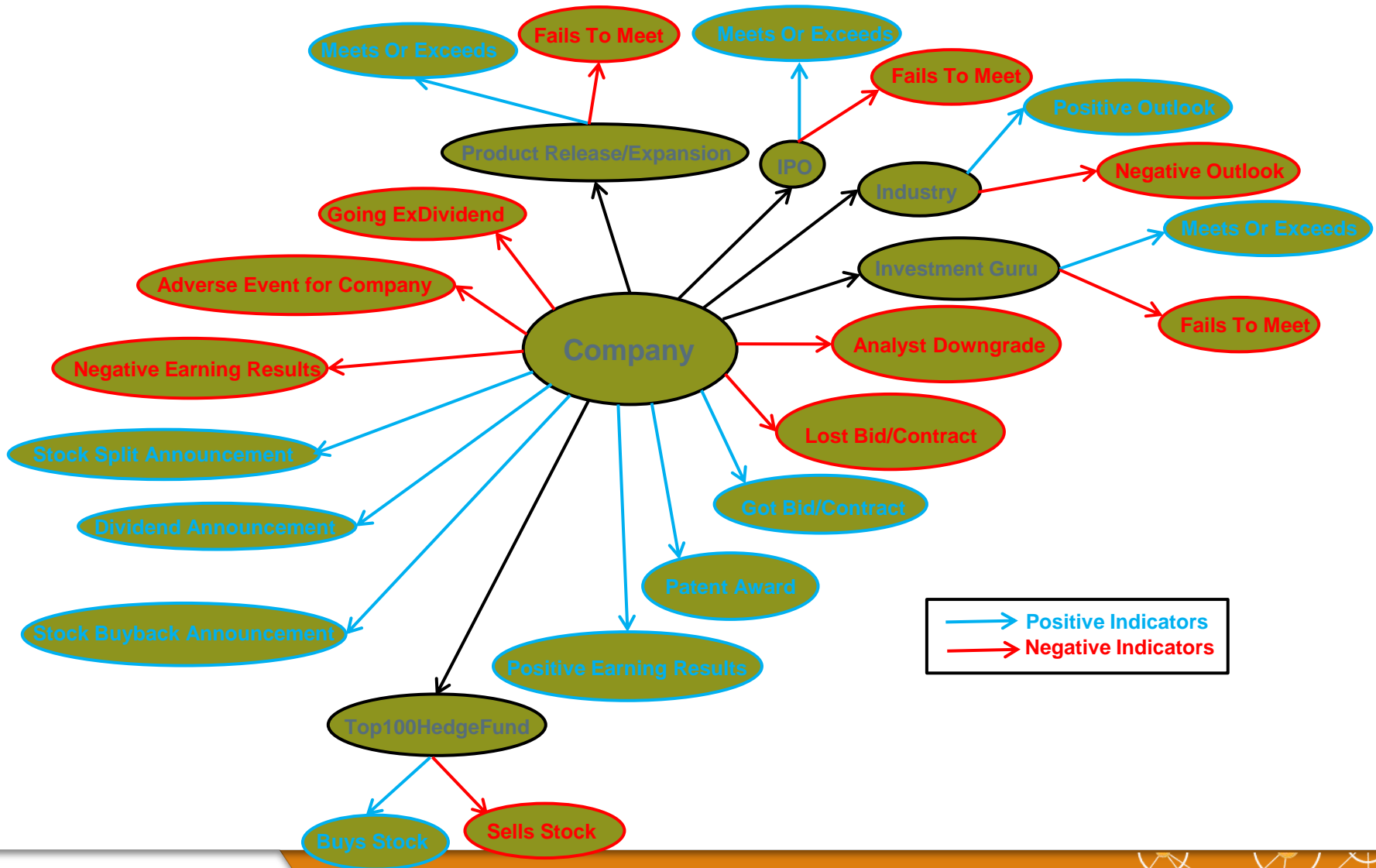
Back to the Eastman Kodak case…
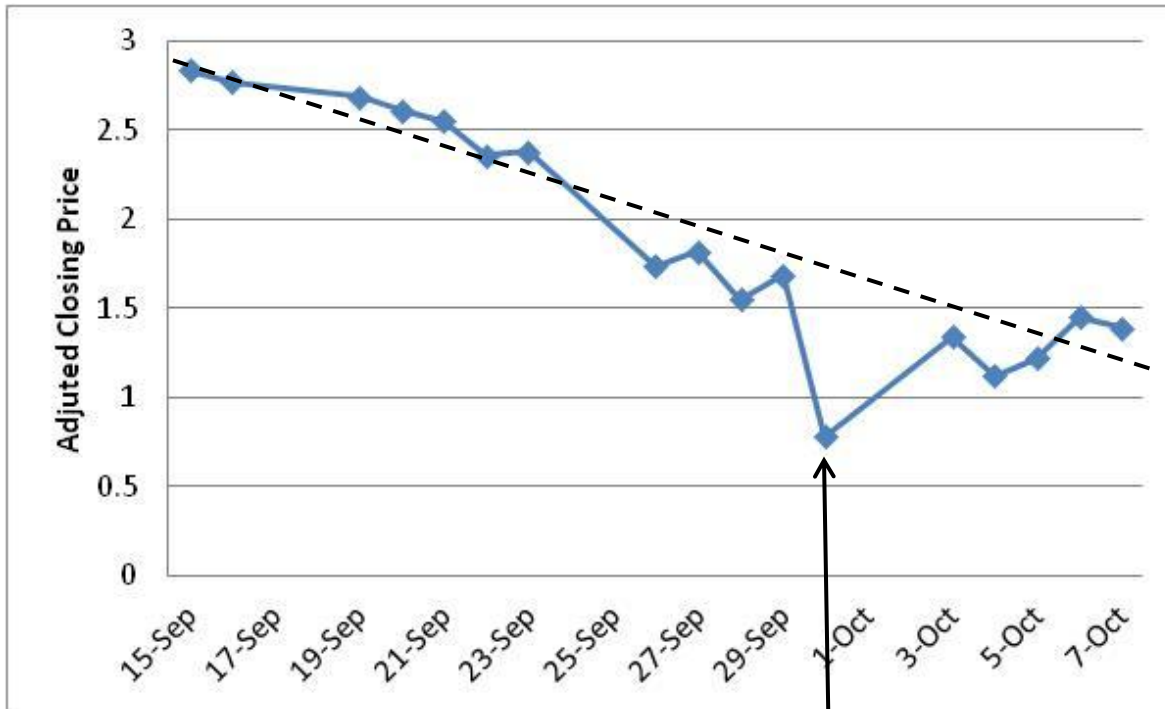
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Bankruptcy filing rumors; trading halted several times

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YarcData: Big Data Appliance for Graph Analytics

Gain business insight by discovering unknown relationships in big data

- *Graph analytics warehouse supports ad hoc queries, pattern-based searches, inferencing and deduction on dynamic data sets*

Achieve competitive advantage with scalable *real-time* graph analytics

- *Purpose built to solve big data graph problems with large shared-memory and massive multi-threading*

Ease adoption with subscription pricing and industry standards support

- *Data center ready appliance with open interfaces enables re-use of in-house skill sets, no lock-in and simplified integration*