# Global Commercial Scoring

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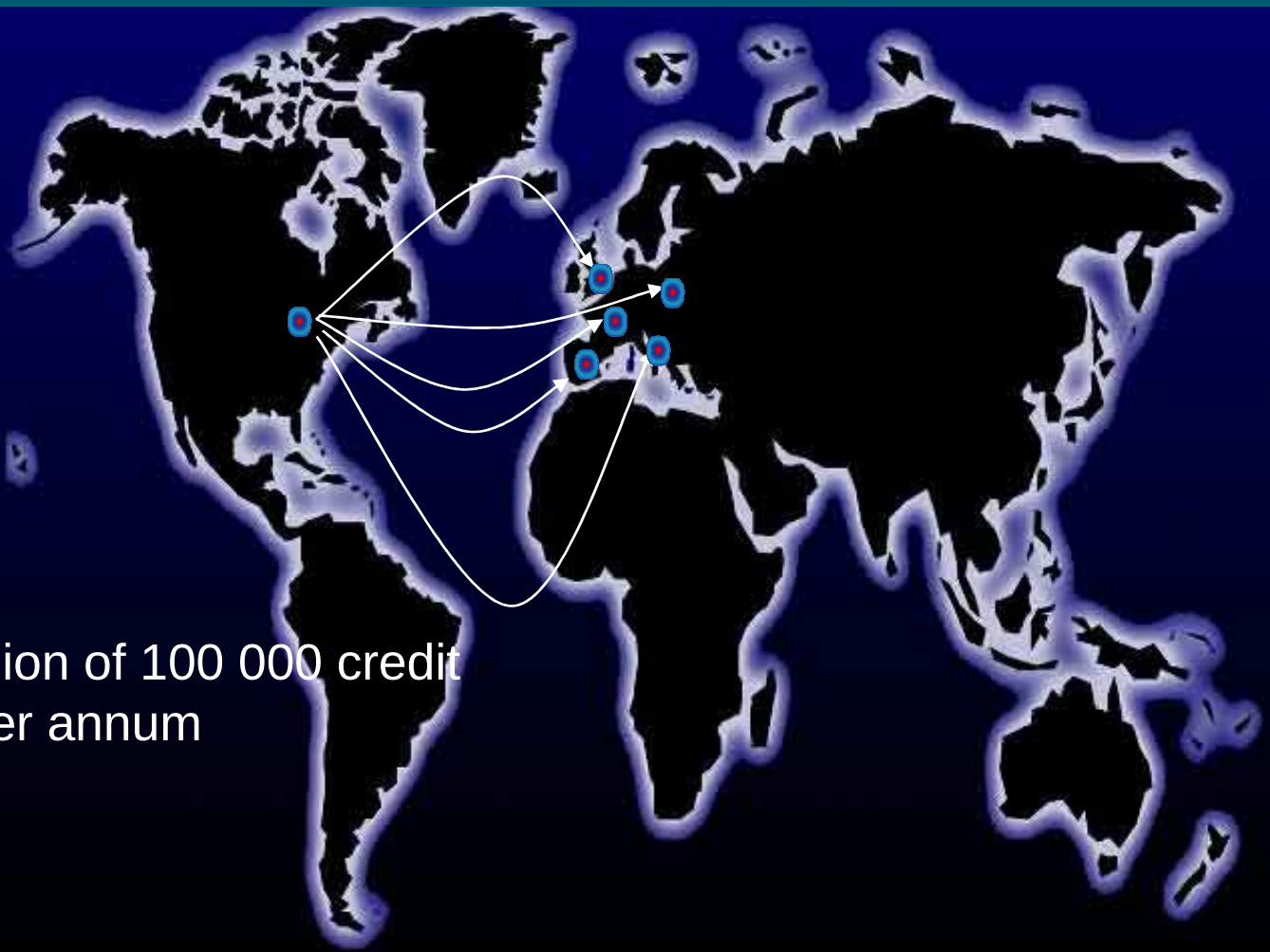
# Global Commercial Scoring - examples

**Swiss based manufacturer supplies to clients all around the world**

50 – 100 cases per month
Average deal size €50 000

# Global Commercial Scoring - examples

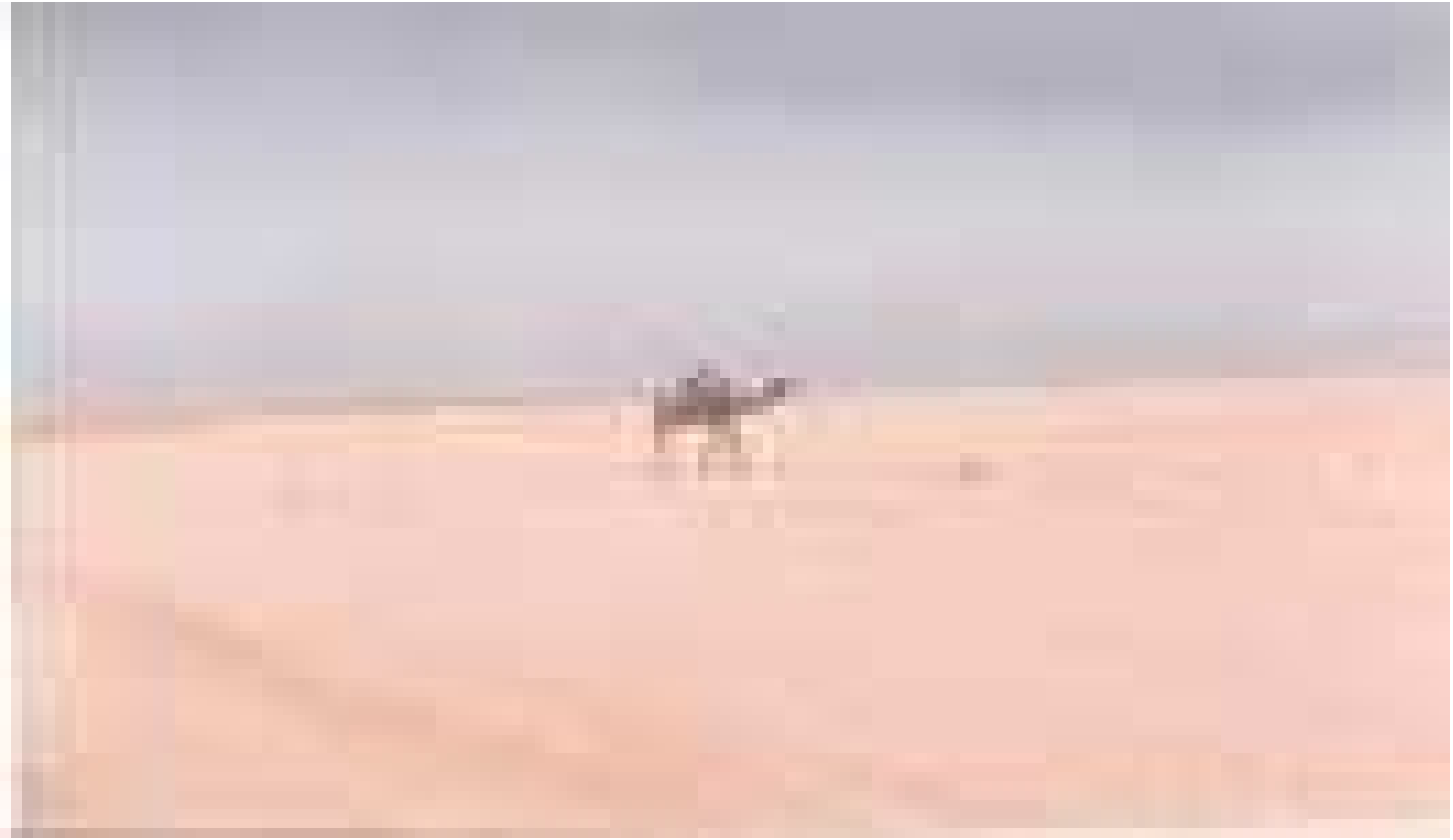
**Finance arm of US based computer manufacturer looking to expand its overseas businesses**



In the region of 100 000 credit reports per annum

# Global Commercial Scoring - examples

**Start-up Commercial Credit Bureau wants to have a risk score**



# The Vision

- One risk score that is available online for any business in the world.

- It will…
  - Work for any known business
    - Large and small, not just those that are S&P rated
    - Limited and non-limited
  - Have a common score : odds / PD scale
  - Use a common definition of “Bad” across all countries
  - Be based on all the data available in that market in the scorecards
  - Meet all the local regulatory requirements
  - Be as predictive as any other generic score in that market
  - Come with a credit limit that will take account of the local trading environment

# The Issues

- Connectivity
- Do we produce meta-data or not?
- How do we use the data?
- Score Calibration
  - what scale
  - What outcome
  - How should it fit in with other international ratings agencies
- Avoiding lowest common denominator
- How to develop scorecards in countries where we have no experience.
- How to benchmark scores in countries where we little experience
- Should we factor in the point in the economic cycle for countries or regions?

# Connectivity

- The architectural part of the problem has been largely solved.

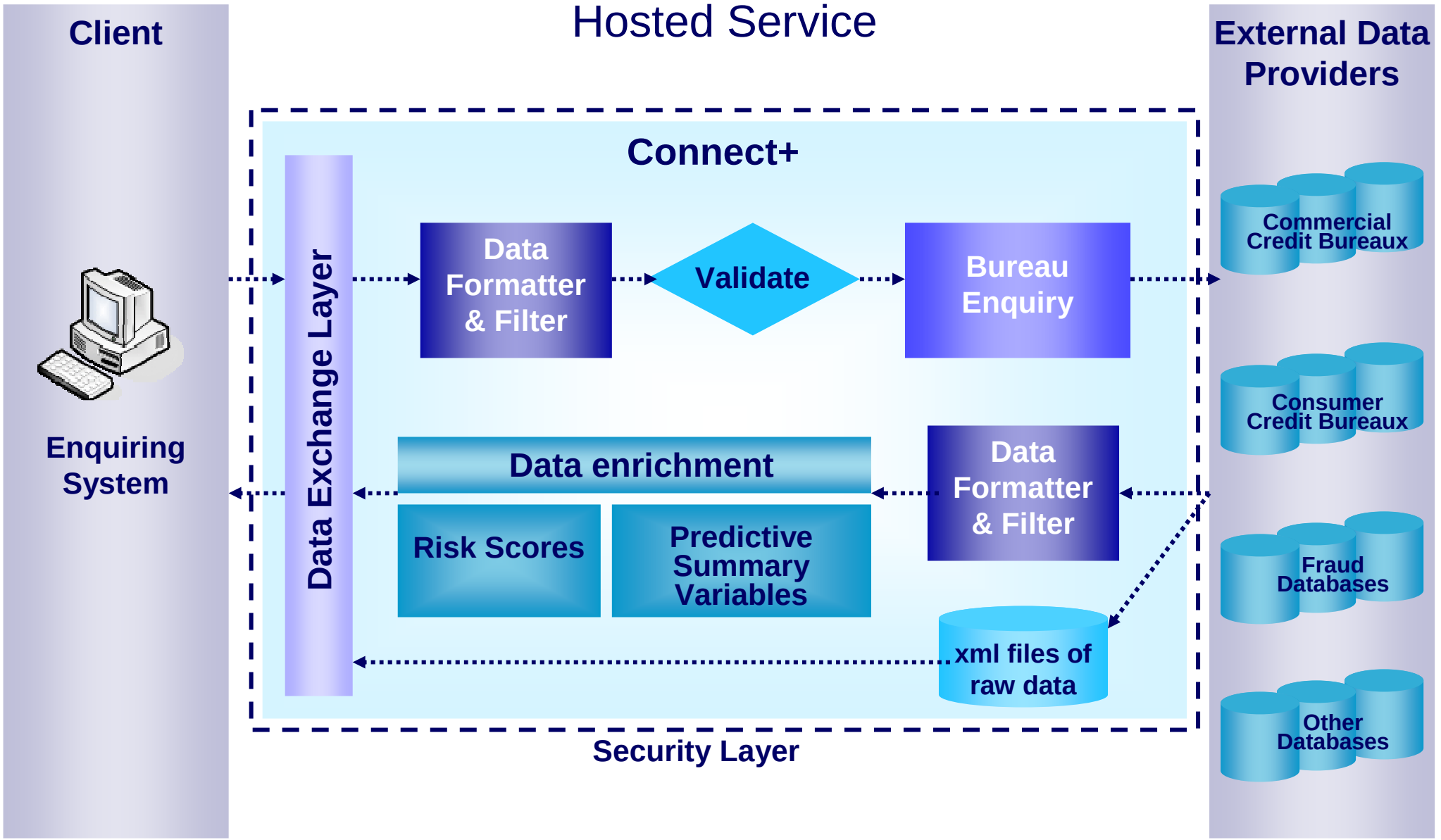
# Connectivity Solution: Connect+

**Connect+ is a unique solution that manages the complexity of gathering the right information from multiple data sources***

A Global Credit Bureaux Framework

* Other solutions providers are available

# Connect+ Structure



# Connectivity

- The architectural part of the problem has been largely solved.

- Issues remain about
  - Costs
    - Establishing and maintaining links
    - Reselling data
  - Flexibility
  - Transporting data across national boundaries

# Meta-data

- There is a lot of potential added value from the creation of a ‘Meta-data’ layer within the bureau connectivity solution
  - Credit bureaux hold different data in different formats
  - Just for company accounts bureaux may hold
    - Full accounts
    - Modified / abbreviated accounts
    - In UK GAAP or IFRS standards
- There is also a huge amount of effort involved in setting up and maintaining the mappings from every credit bureau to the meta-data layer.
- Manage this by maintaining only a basic layer of data and value adds

# Countries where we have little experience

- Scorecard development
  - Difficult where we don't own data
  - Need to rely on client samples which have inherent biases

- Use of scorecards from other countries / regions
  - Differences in data
    - Many variables are consistently predictive across geographies
    - E.g. age of business, size of business, slow payment activity, weak balance sheet, profitability
  - Misalignments
    - Alignment shifts – may need to re-weight the scorecards
    - Scoreband migration – not an issue, just results in lower average scores
  - Use of Expert validation is important

# Universal Scoring Characteristics

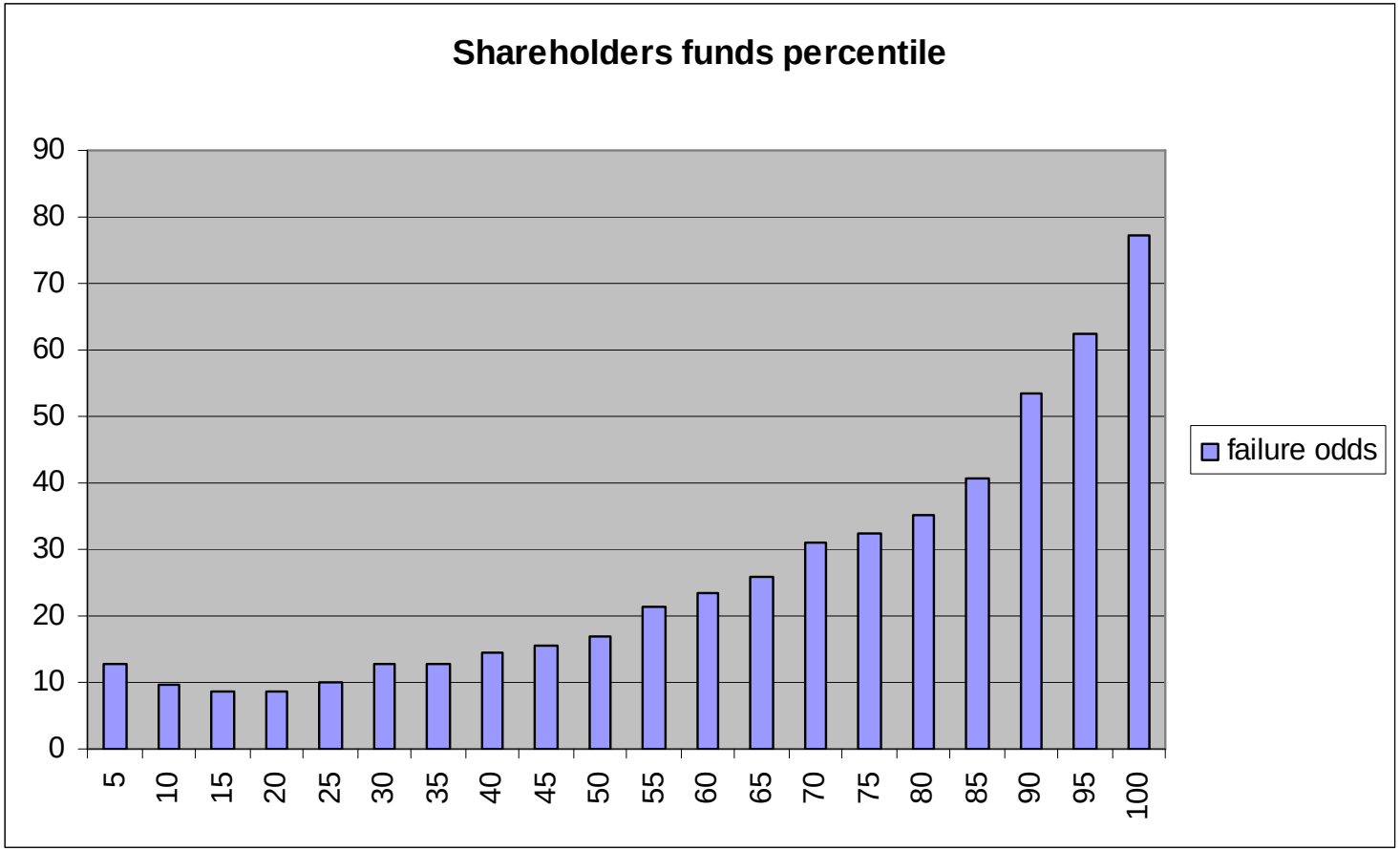
- Limited Companies – generally we can define many of the financial attributes that define risk and we have observed that these variables behave consistently across different markets.

| | |
|---|---|
| Size | – e.g. Total Assets |
| Profitability | – e.g. Return on Assets |
| Activity | – e.g. Turnover |
| Growth | – e.g. Percentage change in Shareholders Funds |
| Borrowing | – e.g. Equity Gearing |
| Liquidity | – e.g. Current Ratio |

Given the structural link between the measure of behaviour and outcome then we would expect this data to be highly predictive but finances are only a small part of the picture when defining business risk.

# Contribution of a company's financial statement

- In recent developments financial statement data was only as influential on the final scorecard as payment data.




For the lowest 40% of the population the balance sheet strength is not strongly predictive .

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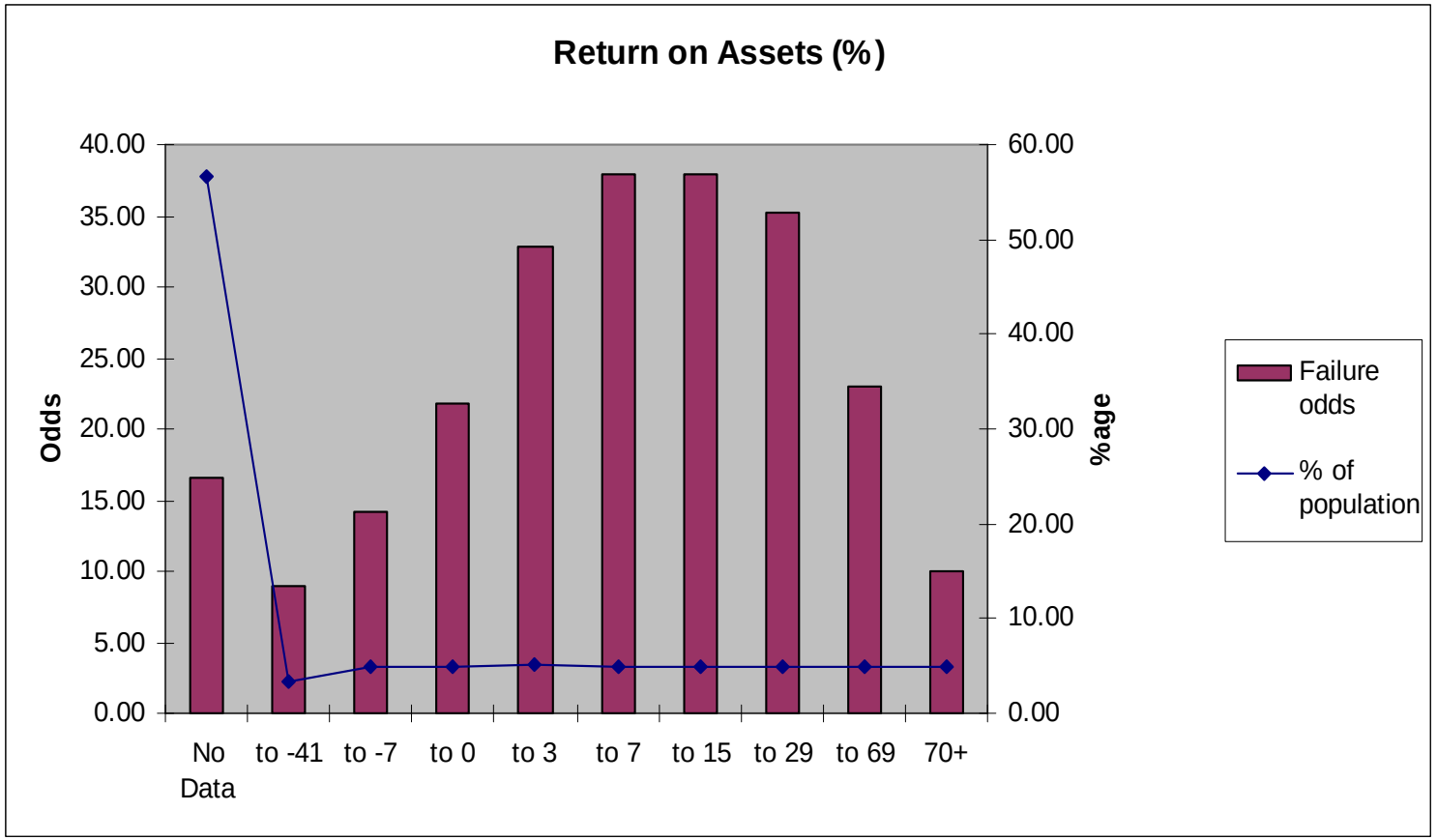



This data is only present for 45% of companies and the pattern of predictiveness is not straightforward to model or interpret.

# Other scoring variables

- Experience from the consumer market shows us that non-causal data can be highly influential in predictive models.
  - E.g. Marital status / residential status

- Previous papers have commented on the other influences on a company's riskiness* e.g.

| | |
|---|---|
| Management experience | • Directors' track record<br>• Director's personal credit history |
| Industrial factors | • Industry sector performance<br>• Profile information |
| Organisational resources | • Group structure |
| Environmental factors | • Regional and National industrial performance |
| Non-Financial company performance measures | • Compliance with regulations |

* (How Can Corporate Performance Be Measured? YC Hu / J Ansell 2005)

# Benchmarking

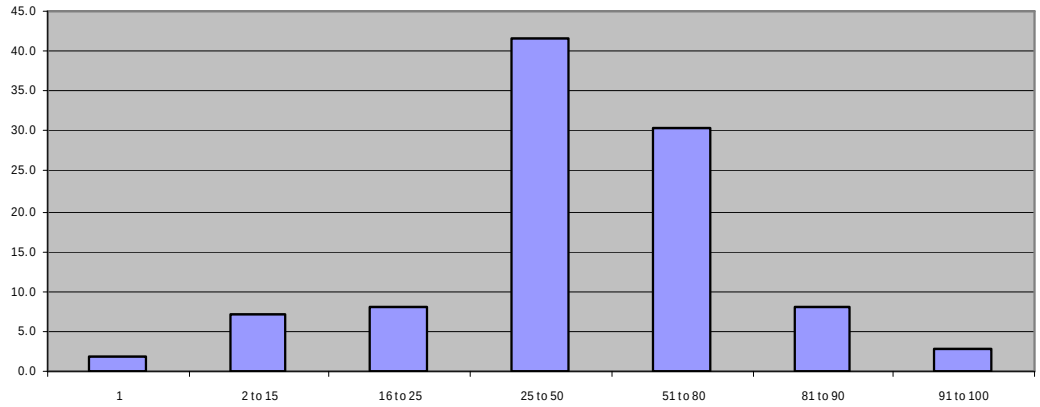
- Market specific models will directly measure risk.
- Out of market scorecards will rank risk but how do we calibrate them to market specific bad rates?
- Combine nationally reported data with indexed score distributions to produce nationally specific bad rate estimates.

| Score | Index | National Failure Rate | Score Band failure rate |
|---|---|---|---|
| 1 to 10 | 0.25 | 4.0% | 16.0% |
| 11 to 20 | 0.5 | 4.0% | 8.0% |
| 21 to 30 | 1 | 4.0% | 4.0% |
| 31 to 40 | 4 | 4.0% | 1.0% |
| 41 to 50 | 10 | 4.0% | 0.4% |

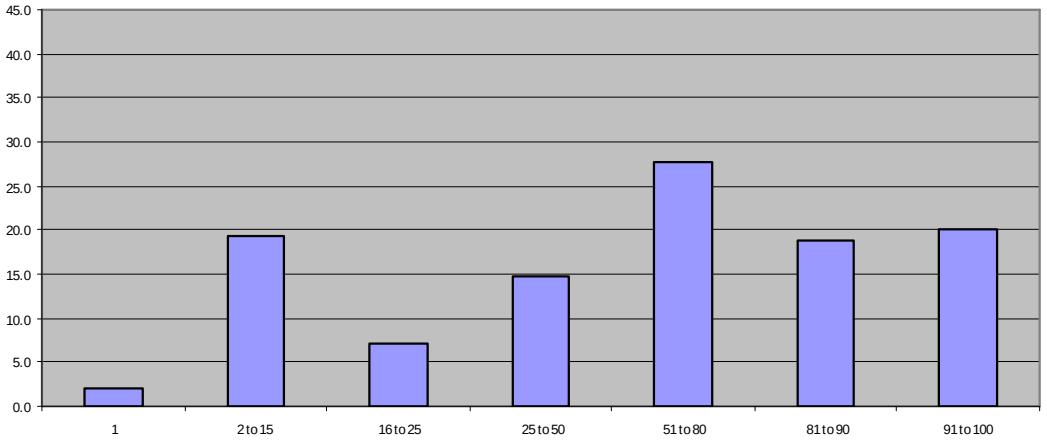
# Calibration

- Big issues with scale. Differences in predictiveness of scorecards between countries can cause loss of granularity at the extremes or mid-range
- For example, weak scorecards will have large numbers clumped in the mid-ranges.
- Strong scorecards may run into problems with large numbers in the top score band

**Scorecard with Gini of 45**




**Scorecard with a Gini of 68**



# Calibration - solution

- Supply a ranking alongside a calibrated score, i.e. this company lies in the 37th percentile of companies from this country.
- Include a measure of scorecard accuracy with credit opinion
- Calibrate scores to a standard score to odds (P(bad)) scale
  - Can we define a common definition of bad?
    - Twelve month outcome
    - Copy Basel II definitions of default
    - Use concept of company failure
- Should we align our scales with other agencies such as S&P / Moody's
  - They cover only a tiny fraction of larger companies but it would be helpful at the top end of companies where the two scales overlap to show what correspondences there are.

# Alignment to Moody's

| UK Commercial Delphi Score | Moody's equivalent | One year failure rate |
|---|---|---|
| 1 to 5 | Caa3 | 71.0% |
| 6 to 8 | Caa2 | 33.1% |
| 9 to 15 | Caa1 | 20.8% |
| 16 to 23 | B3 | 11.9% |
| 24 to 37 | B2 | 7.7% |
| 38 to 63 | B1 | 5.5% |
| 64 to 80 | Ba3 | 2.8% |
| 81 to 84 | Ba2 | 1.4% |
| 85 to 90 | Ba1 | 0.8% |
| 91 to 96 | Baa3 | 0.6% |
| 97 to 100 | Baa3 | 0.5% |

# Long-term Economic factors

- Use techniques from Basel II stress testing analysis such as sensitivity analysis to estimate impacts of economic factors on components of scorecards.

- Forecasts of economic factors can then be used to modify risk estimates.  This assumes the existence of economic forecasts for the countries in question.

# How do we achieve this?

Vary the level of service with the market

| | | |
|---|---|---|
| 1st Rank | E.g. UK / US / Italy / Denmark where there are highly competitive markets in data, scores and other value added services | Ranking score<br>Calibrated score<br>Economic factors weighted<br>Credit limits |
| 2nd Rank | E.g. Turkey where there is an active credit markets but little current sophistication in commercial bureau services | Ranking score<br>Calibrated score |
| 3rd Rank | E.g. China, India which are developing credit markets with new bureau (if any) | Ranking score |

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