



Cyberattacks: What is the impact on corporate value?

GP Goldstein

Agenda

- The problem with cost evaluation**
- Impact for publicly listed companies**
- Impact for private companies**
- Understanding cost factors**

Global business leaders understand there is a new risk – and a new cost

World Economic Forum: Main global risks (probability of happening)

	2008	2014	2015	2016	2017	2018
1st	Asset price collapse	Income disparity	Interstate conflict with regional consequences	Large-scale involuntary migration	Extreme weather events	Extreme weather events
2nd	Middle East instability	Extreme weather events	Extreme weather events	Extreme weather events	Large-scale involuntary migration	Natural disasters
3rd	Failed and failing states	Unemployment and underemployment	Failure of national governance	Failure of climate-change mitigation and adaptation	Major natural disasters	Cyberattacks
4th	Oil and gas price spike	Climate change	State collapse or crisis	Interstate conflict with regional consequences	Large-scale terrorist attacks	Data fraud or theft
5th	Chronic disease, developed world	Cyber attacks	High structural unemployment or underemployment	Major natural catastrophes	Massive incident of data fraud/theft	Failure of climate-change mitigation and adaptation

Last 9 months in Corporate North America

December



Largest Medical Laboratory in Canada

April



April



Largest ATM provider in the US

July



September



*Fortune 500 Hospitals & healthcare provider
400 Healthcare facilities
3.5 M patients in US & UK*

En 2020:

► 96% of companies worldwide have experienced at least one significant cyber-attack over the last 12 months

The whole of a company's value chain can be targeted

Industrial production systems



Labelling



General services & marketing



*Retail point of sale
Client data*



What is the total cost to the company?

However, cost evaluation is not clear at the corporate level...

Median cost for cybersecurity incidents in Europe
Hiscox (2020)

= 51 200 € (Hiscox)

Cost of data leak
Rand Corp (2016)

= 200.000\$
(up to 0.4% du CA)

Cost of data breach
Ponamon Institute (2020)

= \$3.86 million

Cost of malware: #NotPetya (2017)

White House (2018)

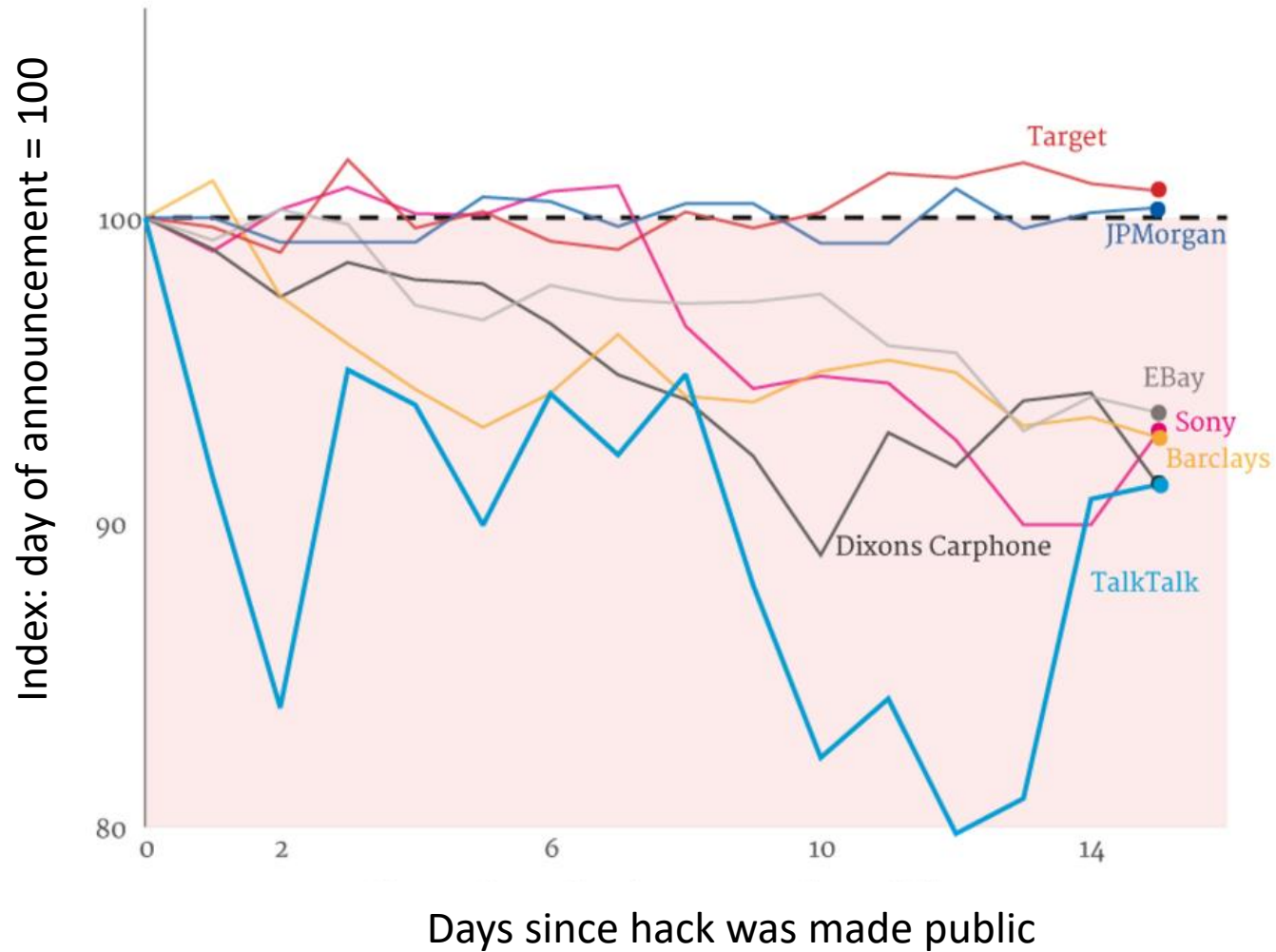
= \$ 10 Billions worldwide

Impact of Cyber-Attack on SBE

National Cyber Security Alliance (2012)

=> 60% in bankruptcy after 6 months

...nor is it for Stock Exchange analysts & shareholders



2017 - Equifax : a once-in-a-while unique case?

Equifax Stock Price



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Cyber-attacks: real impact on corporate value – but depends on business profiles

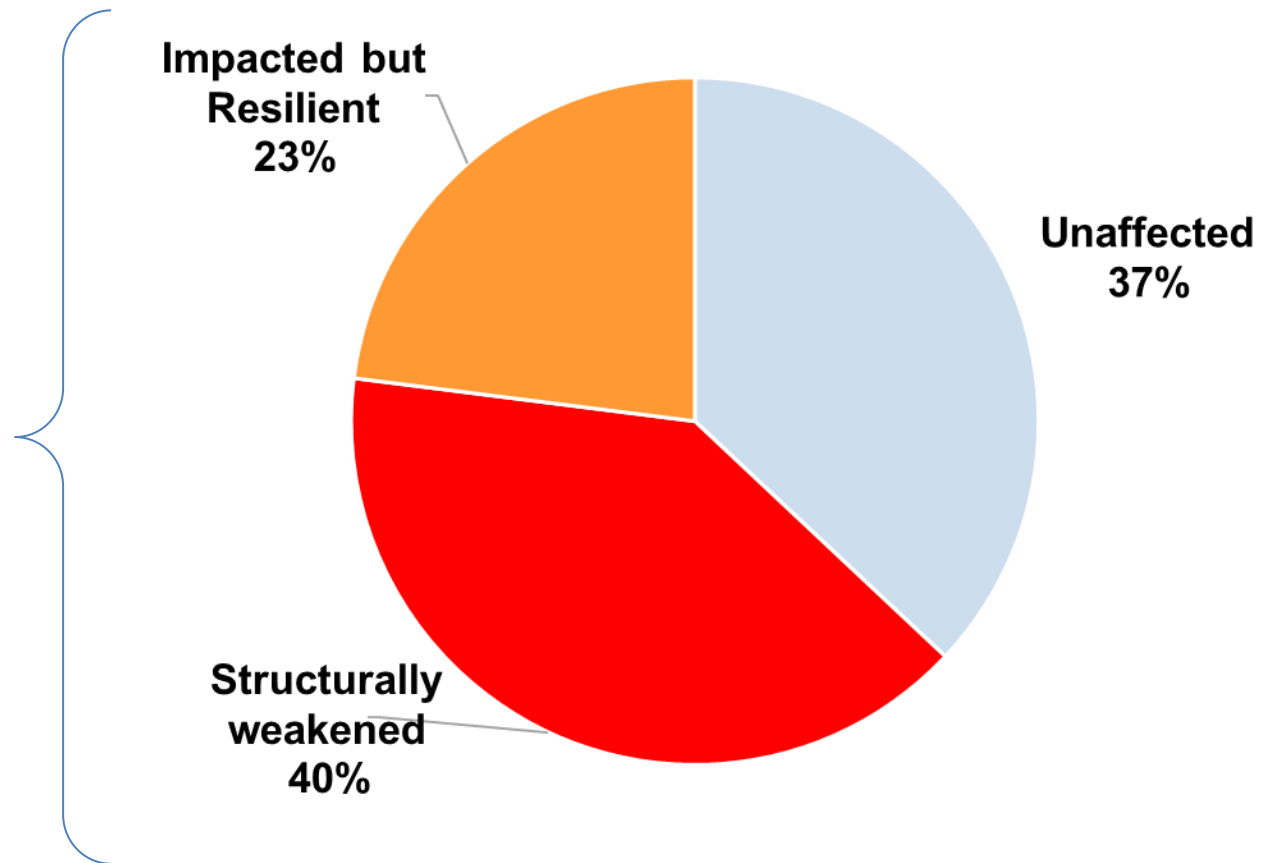
Type of corporations with regards to 12 months evolution of TEV post cyber incidents
Sample of 30 incidents

Study by



Majority (63%)
of incidents do
impact
significantly
corporate value

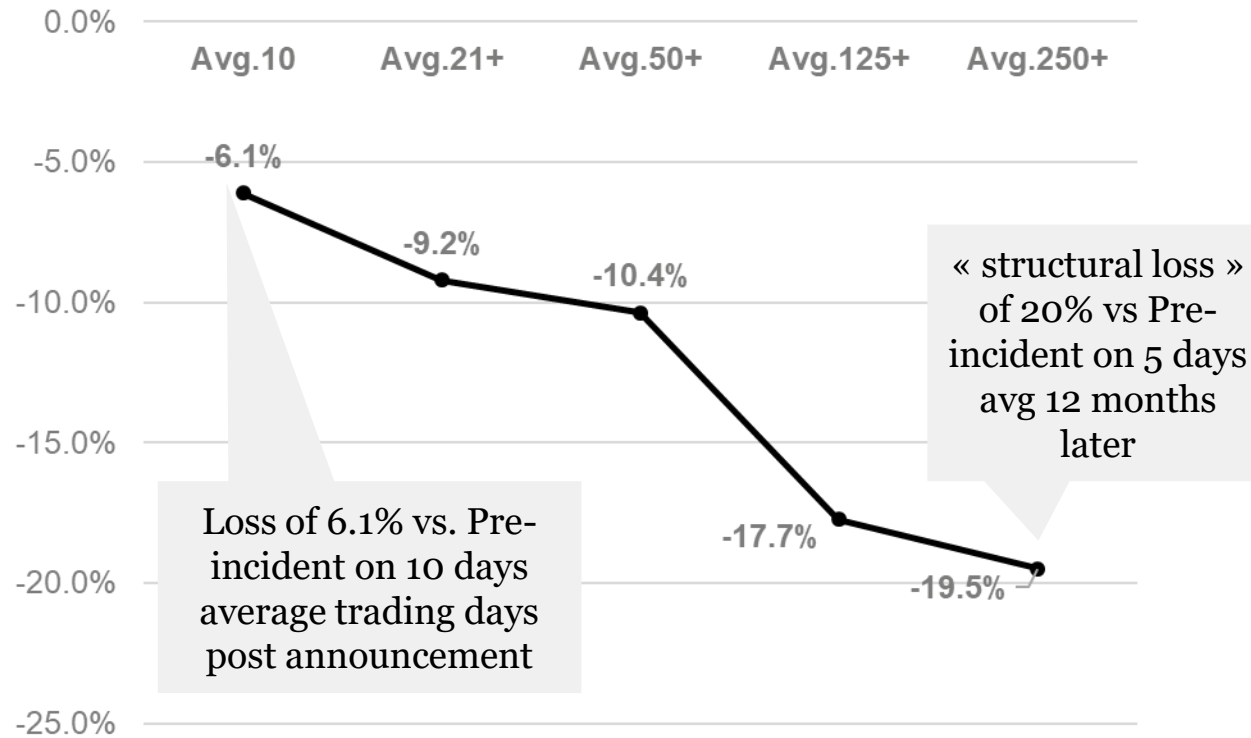
PRELIMINARY RESULTS



Strong impact for “structurally weakened” companies....

Evolution of Stock Price post cyber incident announcement

Sample of 30 incidents – average price for 5-trading days sessions



- **Potential drivers**

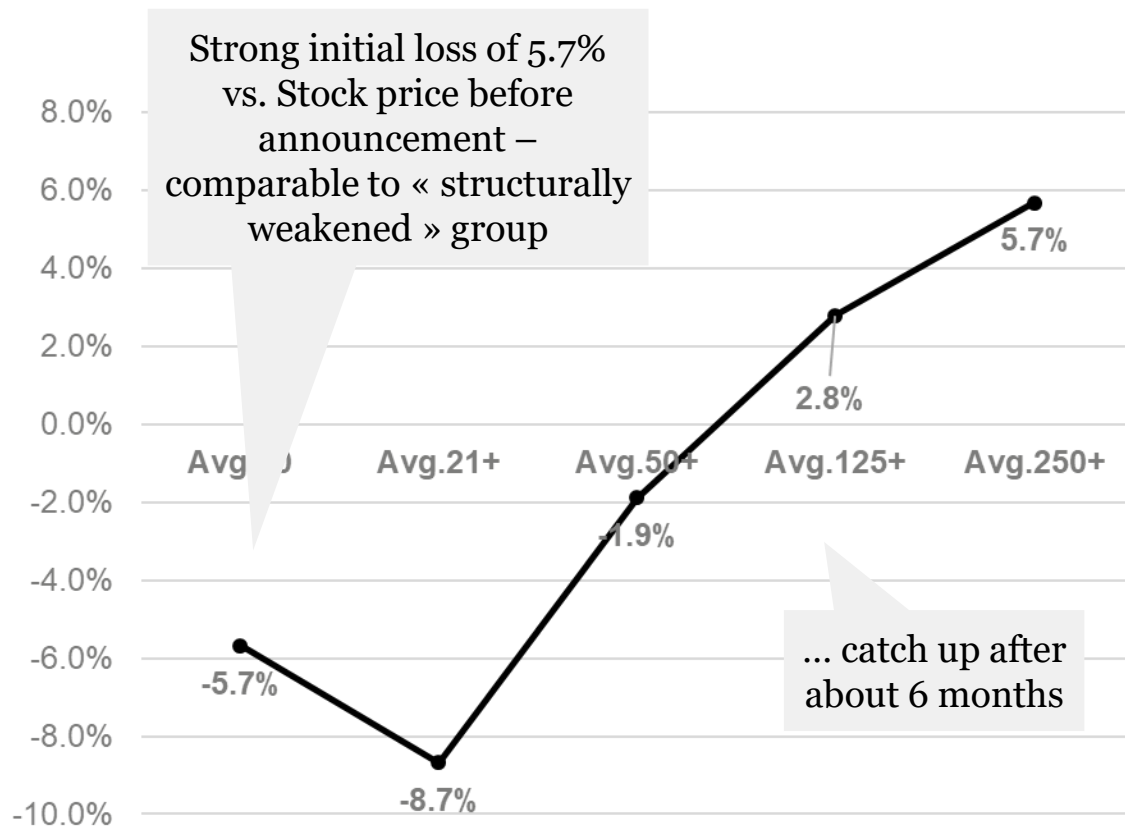
- Bad track record
- Revealing of bad mistakes
- Weak managerial reaction

Study by



GP Goldstein

“Resilient companies” able to rebound and then gain some



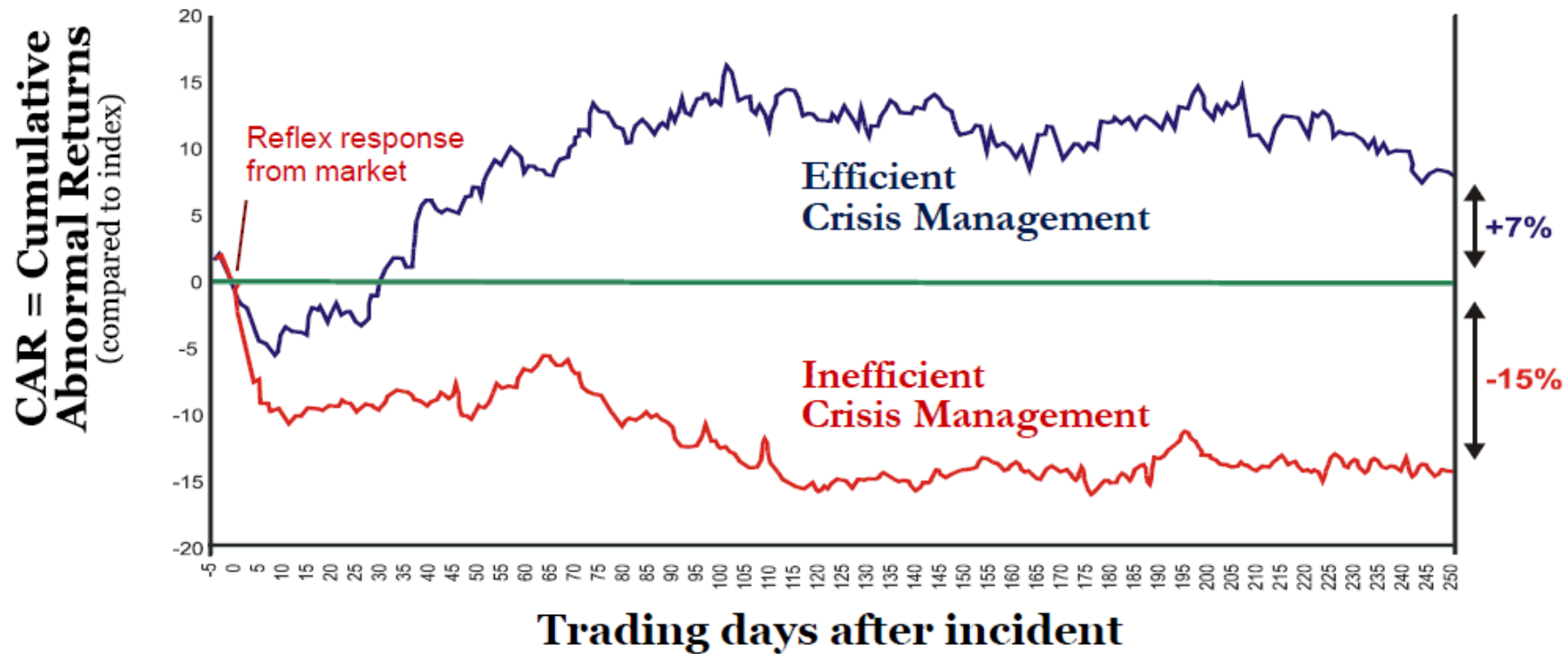
- **Rebound achieved in the critical first 2 months**
- **Potential drivers**
 - Better preparation
 - Strong board
 - Reactive/Agile organization
 - Quality of internal/external communications

Study by



Results reflect somehow older findings on reputational risks

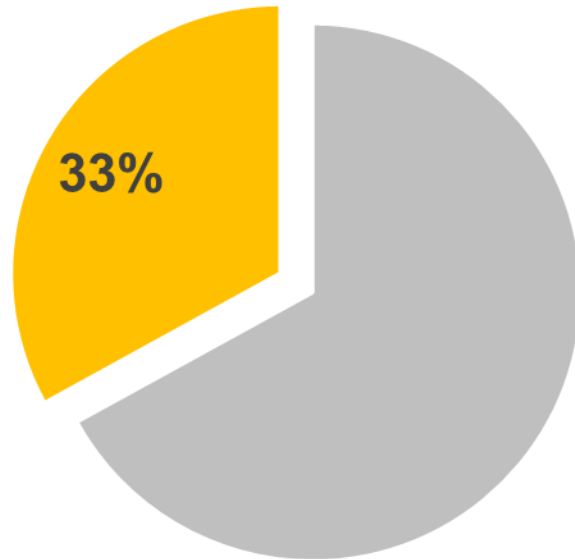
Recoverers vs. non-recoverers



Source : « The impact of Catastrophes on Shareholder Value », Rory F. Knight & Deborah J. Pretty, Templeton College, University of Oxford, p. 3

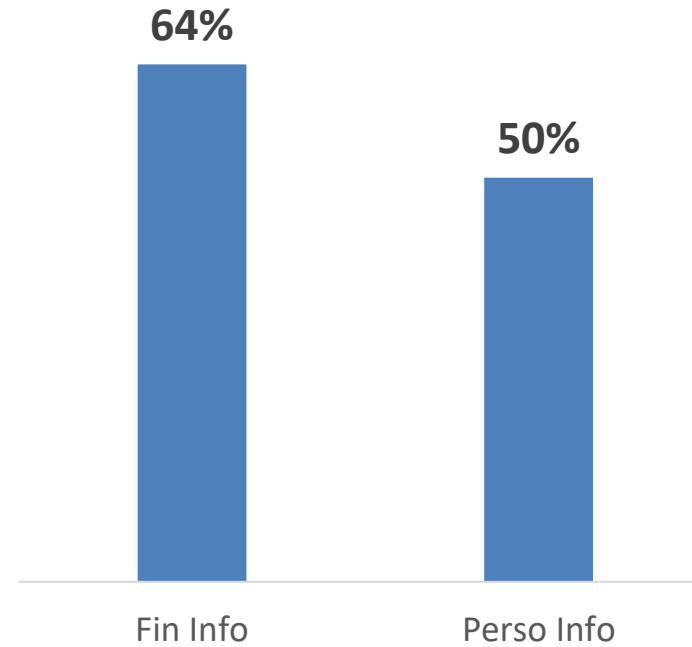
The importance of commercial reputation

% of value linked to Reputation



Source: Babson College

% of clients unwilling to purchase again from a company that suffered a data breach



Source: Gemalto

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From Public to Private Companies

PUBLICLY LISTED

Risk exposure

- Increased exposure to reputational risks
- ...But better access to debt refinancing & capital

Available data

- Stock price (2007-2018)

PRIVATE

Risk exposure

- Less exposure to reputational risks
- ...But less transparency / fewer controls / increased risk exposure
- ...and lesser access to debt refinancing & capital

Available data

- Altarès / D&B Rating (2018-2019)
- Paydex (2018-2019)

The logo for BESSÉ, consisting of the word "BESSÉ" in white, uppercase letters on a dark blue square background.

Global Panel

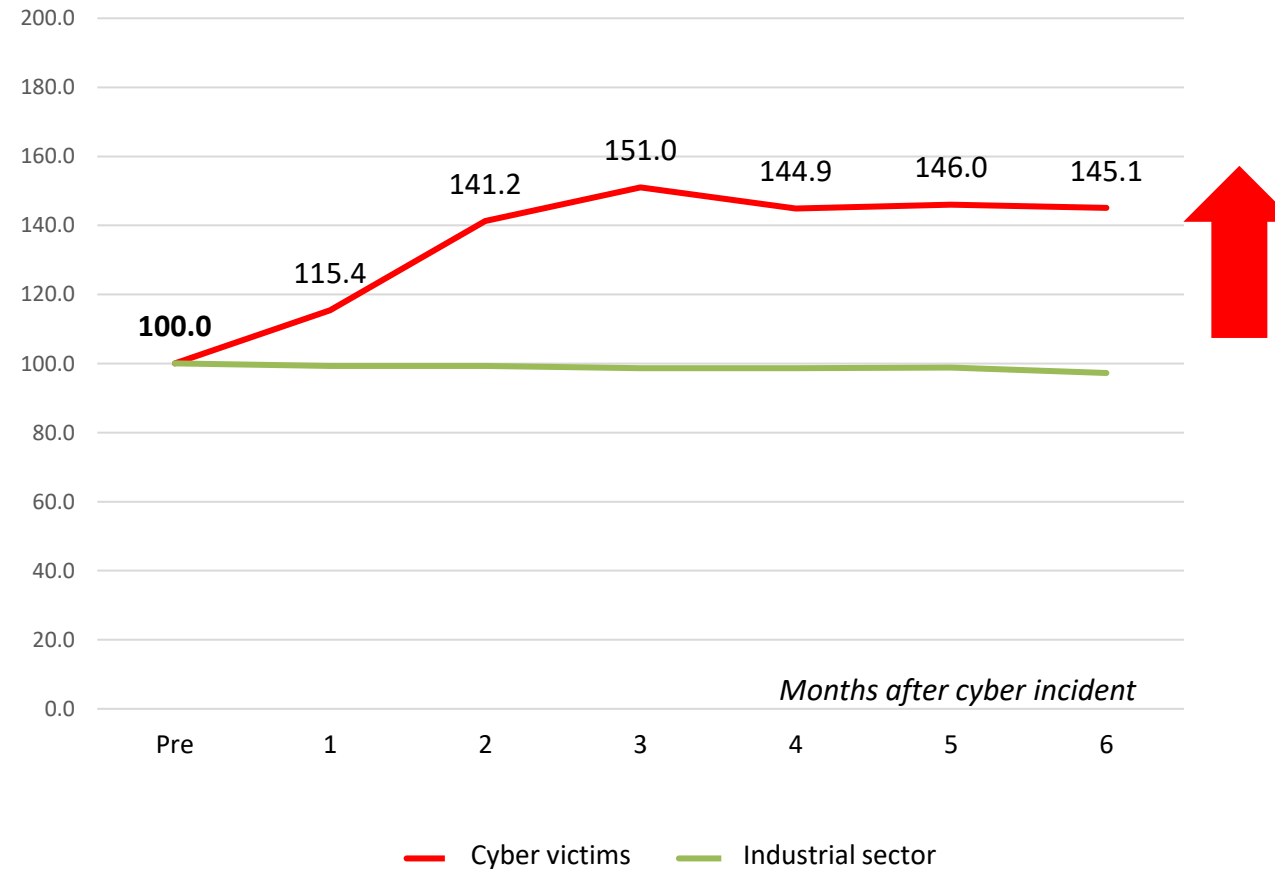
Increase of bankruptcy risks by 50% by month 3

Study by

BESSÉ

Led by
GP Goldstein

Evolution of bankruptcy risks
(N=30 / Base 100: 1 month before cyber incident)



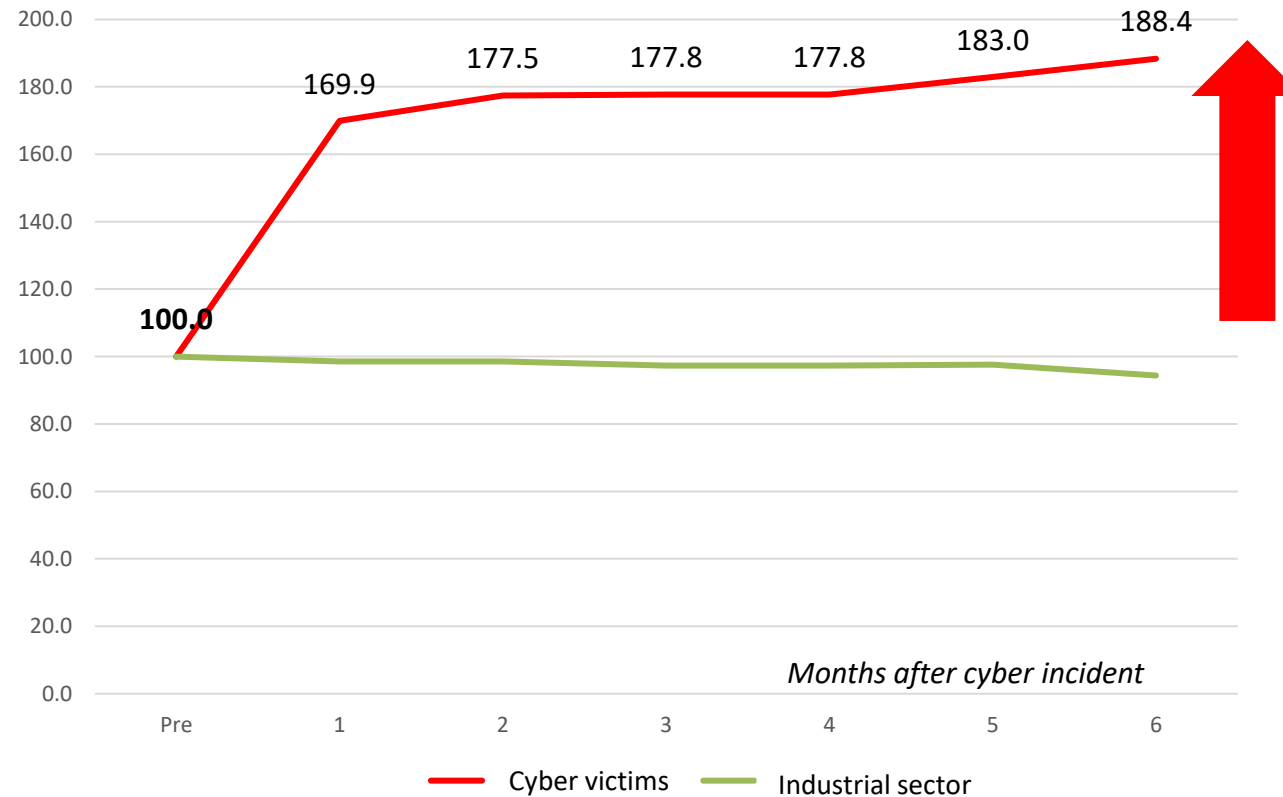
Focus France Quicker and harder degradation

Study by

BESSÉ

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GP Goldstein

Evolution of bankruptcy risks – Panel France
(N=15 / Base 100: 1 month before cyber incident)



Focus France

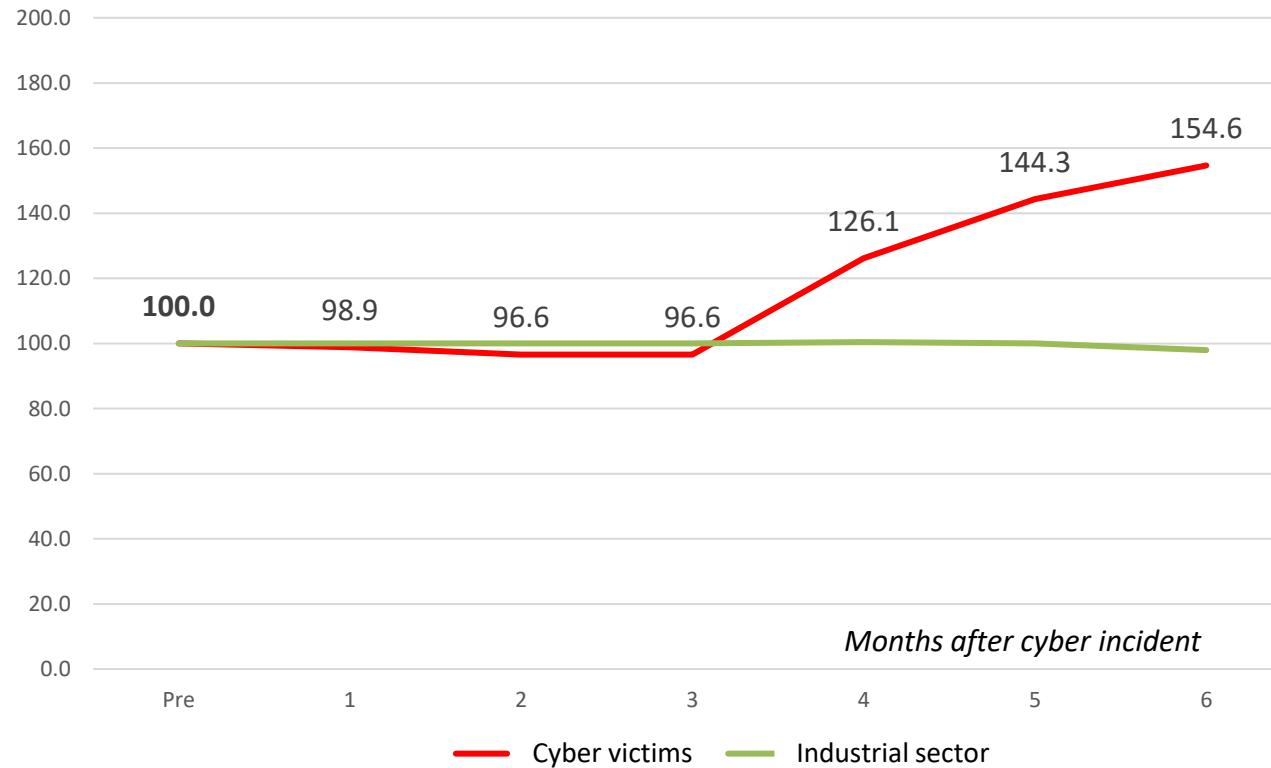
A clear degradation in the number of late payment days

Study by

BESSÉ

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GP Goldstein

Evolution of days of payment delay – Panel France
(N=15 / Base 100: 1 month before cyber incident)



Focus France

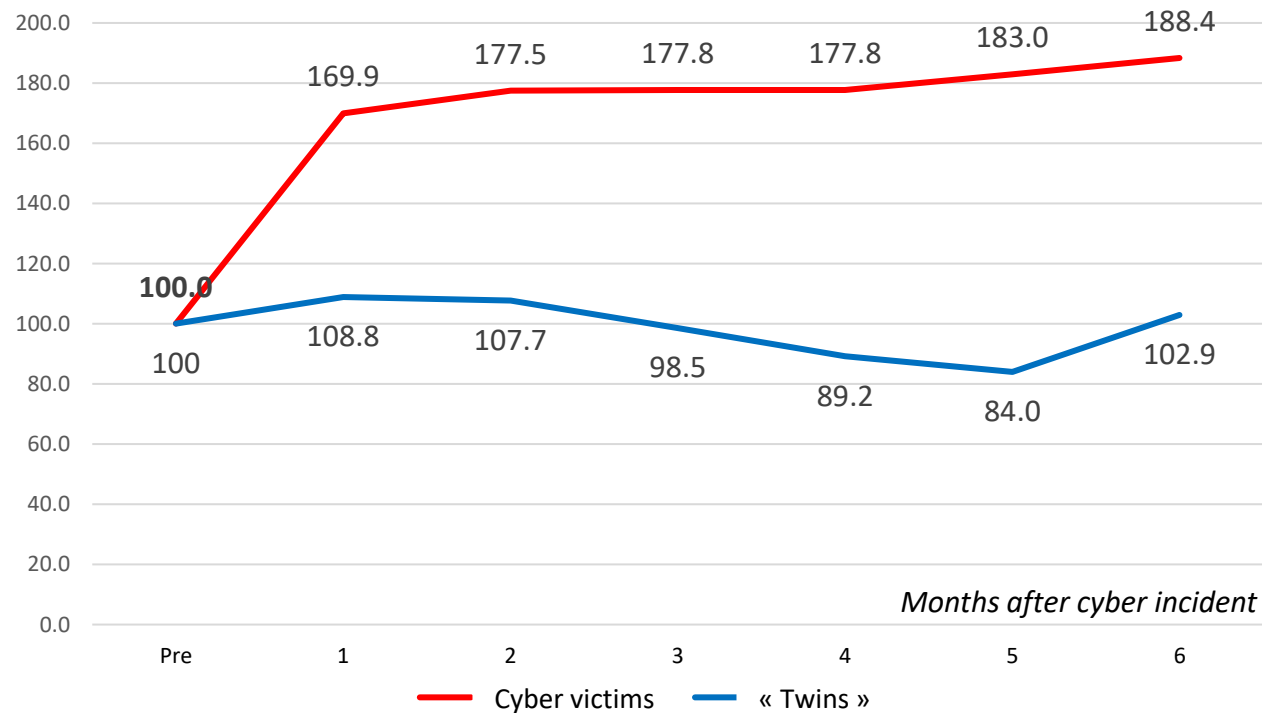
A degradation confirmed: comparison with « corporate twins »

Study by



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Evolution of bankruptcy risks – Panel France: cyber victims vs corporate twins
(N=15 / Base 100: 1 month before cyber incident)



Focus France

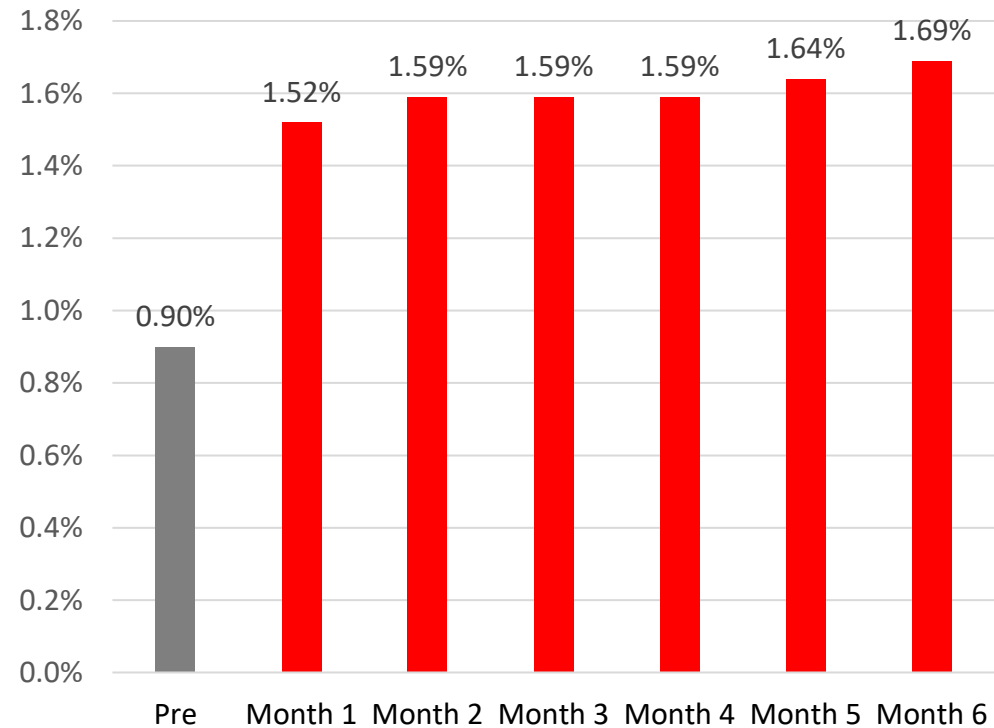
The increase in bankruptcy probability constitutes a clear threshold, with potential impact on corporate value

Study by



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Evolution of bankruptcy probability
(N=15 / Panel France)



Reduction of
-8.5% to -9.5% in
corporate value

Based on

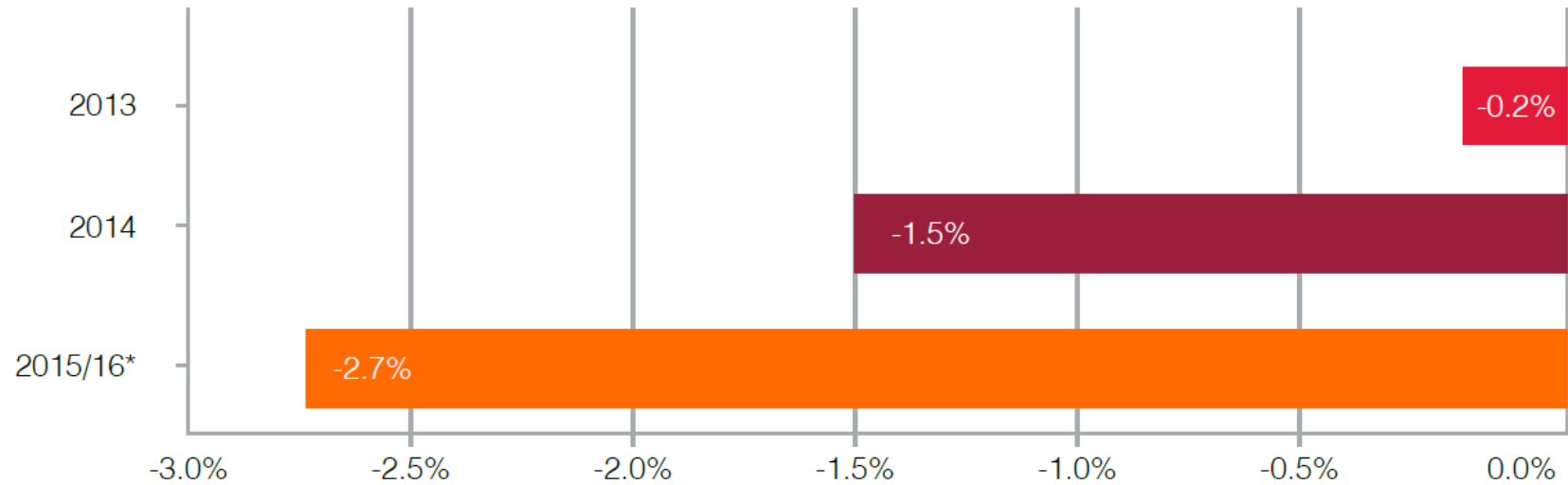
- Kenth Skogsvik, « Probabilistic Business Failure Prediction in Discounted Cash Flow Bond and Equity Valuation”, Stockholm School of Economics, 2006
- Growth assumption: 3% per year
- Model: increase of bankruptcy prob. from 1% to 2% leads to reduction in corporate value by -12.2%

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Over time, cyber risk awareness by analysts is stronger

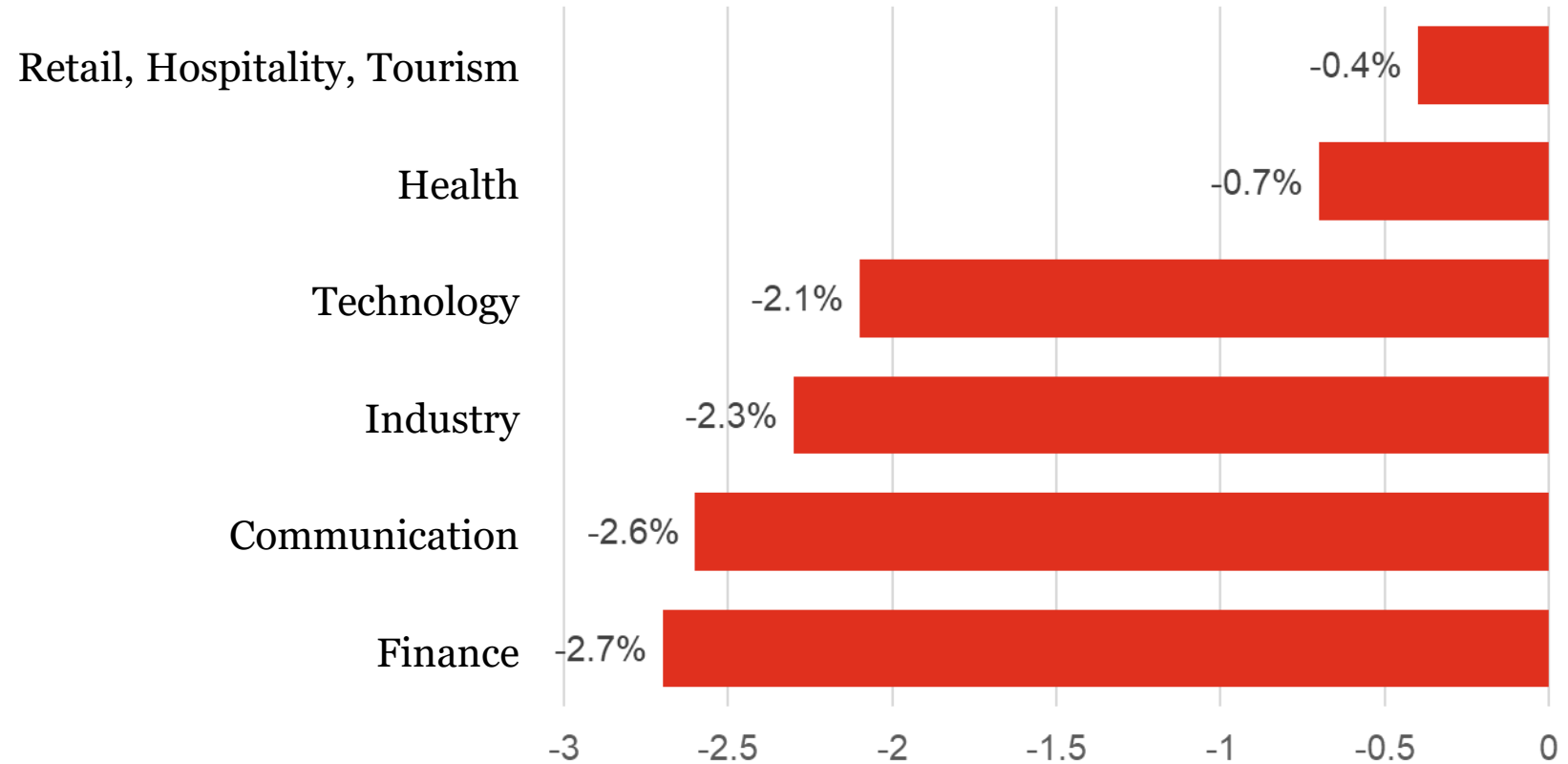
% of stock price decrease on Friday post announcement



Source: CGI, Oxford Metrica

All business sectors are not created equal

% of stock price decrease on Friday post announcement



Source : CGI, Oxford Economics

Potential drivers

State of preparation re Cyber Risks

Quality of incident response

- Including communication / transparency
- Including boards & general management

Business profile

- Importance of competition
- Financial stability
- Cyber risk management re competition

Exposure to « Digitalisation » of business activities

- # of connected employees
- Importance of digital channel re clients
- Importance of partners/suppliers digital ecosystem

Trust is easy to lose – for a long time

Equifax: Stock Price
(18/4/17 to 26/11/18)



❑ Vulnerable on 3 dimensions:

- **Competence**⁽¹⁾
- **Honesty/Legal**⁽²⁾
- **Ethical**⁽²⁾