Endurance | ENDURANCE INSURANCE

CAGNY Spring 2015 Meeting
Fundamentals of Cyber Risk

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Endurance

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"But consider the kickoff chuckle to a speech given to the Wharton School in March 1977 by Sidney Homer of Salomon Brothers, the leading bond analyst on Wall Street from the mid-40s right through to the late 1970s.

'I felt frustrated', said Homer about his job. 'At cocktail parties lovely ladies would corner me and ask my opinion of the market, but alas, when they learned I was a bond man they would quietly drift away.'"

Michael Lewis, *Liar's Poker* (1989)

What's the Issue?

- cyber a hot topic in US market following numerous well publicized data breaches – most recently Target (December 2013, 110M identities), JPMorgan Chase (August 2014, 83M records), Home Depot (September 2014, 109M records)…and now Anthem (80 million records) and Premera Health (11M records)
- in the US, state AGs and the OCR (related to US Dept. of HHS) now viewing privacy breaches as a revenue generating opportunity
- cybercrime an estimated $450 billion industry, led by state actors and organized crime
- Sony Pictures Entertainment a game changer…boards now paying attention

Background and History of the Line

- market about 17 years old (1998)
- originally conceived as 'hacker insurance'…website defacement and virus damage
- demand driven by changes in the regulatory environment over the past nine years…now privacy liability and privacy breach costs are the focus
- demand has come in industry waves since the beginning
- 2012/2013: 'critical mass' achieved, more brokers now on board

Cyber Market Development

Demand Driven by Regulations, Large Breaches

1998: HIPAA

- defined physical and technical safeguards to protect PHI
- no right of private action

2003: California Senate Bill 1386

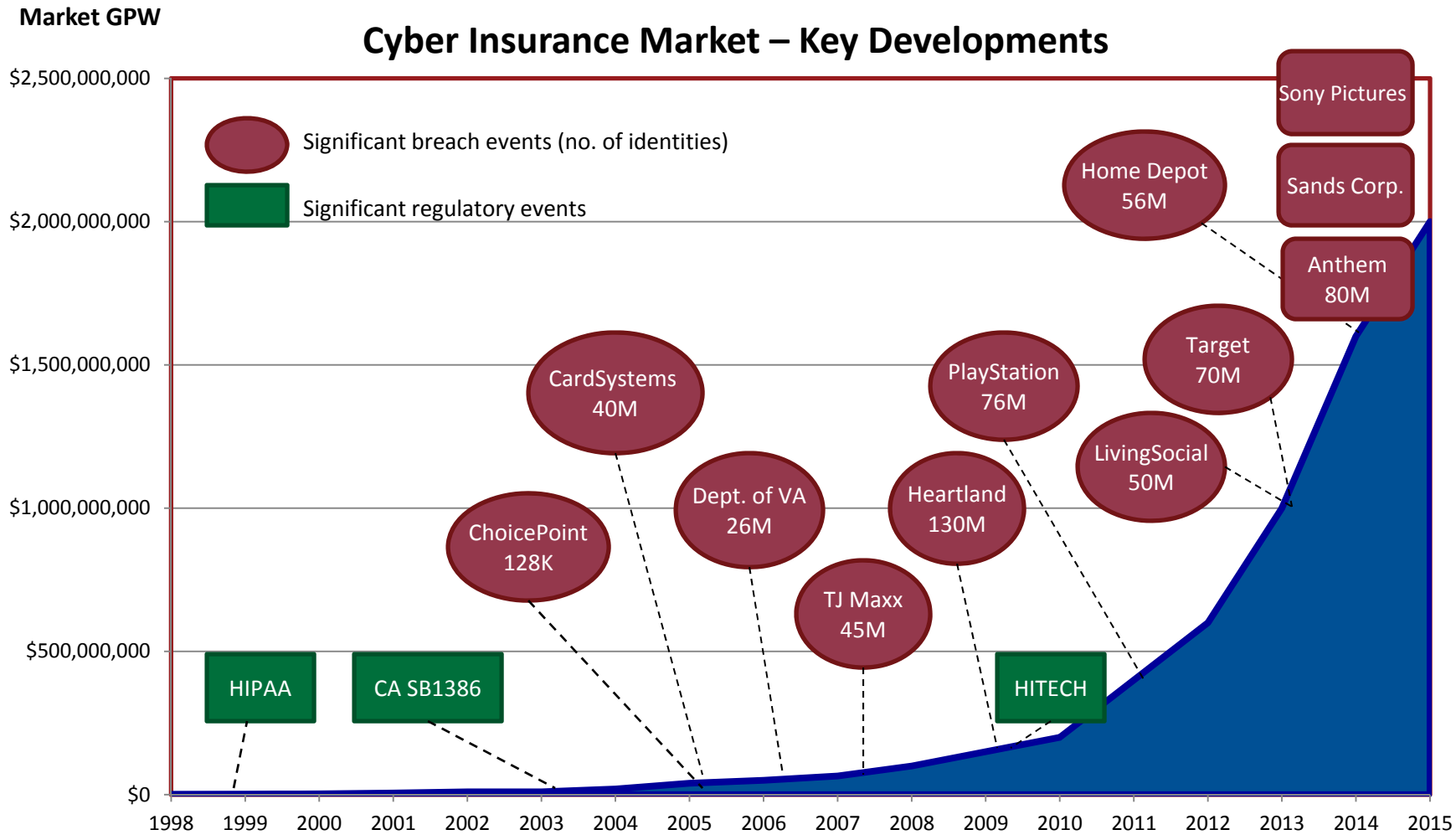
- mandated that individuals whose information is compromised be notified
- critical legislation → 46 other states have since followed

2009: HITECH Act

- strengthens and reinforces HIPAA rules
- defines breach notification requirements for PHI
- expands regulations to business associates of 'covered entities'
- allows state Attorneys General
- civil penalties of between $100-500K per violation, max. $1.5M/year

Key Breaches

ChoicePoint, CardSystems Solutions, TJX, Target, 2015 events


Market GPW
Cyber Insurance Market – Key Developments
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2015
Significant breach events (no. of identities)
Significant regulatory events
HIPAA
CA SB1386
HITECH
ChoicePoint 128K
CardSystems 40M
Dept. of VA 26M
TJ Maxx 45M
Heartland 130M
PlayStation 76M
LivingSocial 50M
Target 70M
Home Depot 56M
Anthem 80M
Sands Corp.
Sony Pictures

Cyber Coverages

Third Party Liability Coverages

- privacy liability
- regulatory actions
- network security liability

First Party (Property) Coverages

- business interruption/network outage
- contingent business interruption
- cyber extortion
- data corruption/reconstitution

Privacy Breach Expense Coverage

- covers post-data breach expenses
- includes forensic investigation, legal, customer notification
- can include expenses for credit monitoring, credit repair services as well

Cyber Coverages

Third Party Liability

Privacy Liability

- third party claims arising out of privacy breaches, other privacy violations
- sublimited coverage for regulatory actions by state AGs, HHS/OCR etc.
- consumer redress funds

Network Security Liability

- claims arising out of the abuse of compromised systems
- claims from individuals, financial institutions, other businesses
- distributed denial of service attacks, network hijacking
- transmission of malicious code

Cyber Coverages

First Party (Property) Coverages

Business Interruption
- coverage trigger: network security breach, DDoS attack
- typically offered with a time period retention (6+ hours)

Contingent Business Interruption
- triggered by the failure of a third party service provider (e.g. cloud)
- typically sublimited due to potential aggregation issues

Cyber Extortion
- DDoS, cryptoextortion threats

Digital Asset Loss
- data corruption, reconstitution

Cyber Coverages

Privacy Breach Expense Coverage

- demand driver 2010-2014
- coverage typically sublimited due to frequency of events
- covers first party expenses incurred by the insured following a data breach
  - immediate breach assistance and services coordination
  - forensic investigation expenses
  - customer notification and call center expenses
  - credit monitoring and repair services

Underwriting Cyber Coverage – Top Perils

- criminal hacking
  - for valuable data — *Target, Home Depot*
  - for intellectual property — *ExxonMobil, British Petroleum et al*
  - politically motivated attacks — *Sands Corp, Sony*
- laptop, other media loss with personally identifiable information (PII)
- violations of company privacy policies
- DDoS Attacks (BI or Extortion)
- business partner and subcontractor mishaps & breaches
- cryptoextortion

Where Do the Dollars Go?

Incident Response

-immediate legal consulting and communication with regulatory agencies

-computer forensic investigations (avg. $100K - $1M)

-breach notification/call centers

-credit monitoring/ID theft services

Legal Expenses and Indemnity

-defense for class actions from individuals affected by a breach

-defense/indemnity for financial institutions (card reissuance fees, fraudulent charges)

-state and federal regulatory actions

PCI Fines and Penalties, Assessments

Business Interruption/Extra Expenses

Cyber Extortion

Data Restoration Expenses

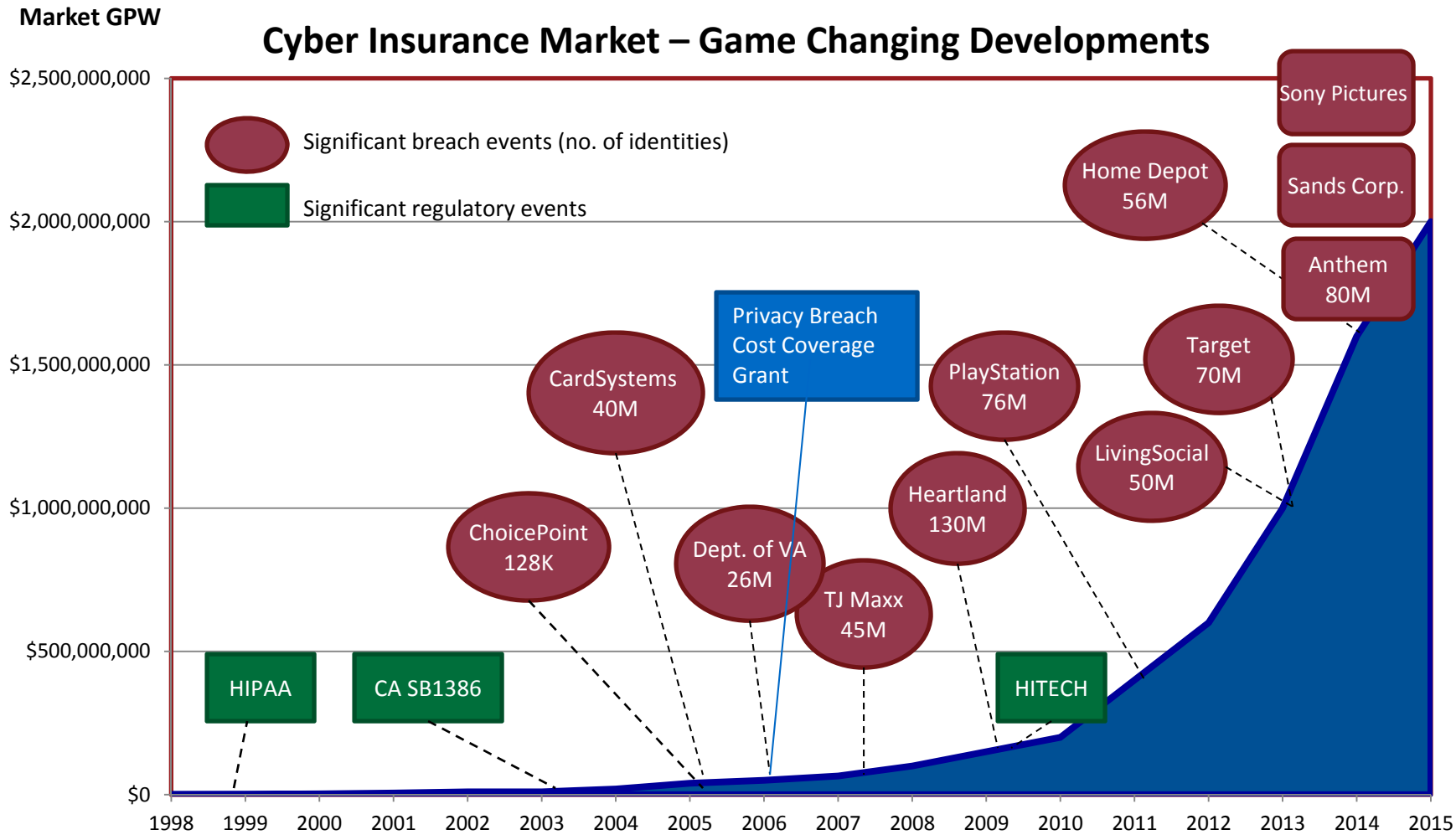
Origins of Cyber Rating

- coverage emanated out of Technology E&O underwriting units
- lightly modified base rates, unmodified ILFs, new mods for the quality of network security and disaster recovery planning
- loads for first party coverage grants later as the product developed

Pricing Cyber Coverage

- typically based on revenues
- rates originated out of professional liability tables, ILFs etc.
- modified further to accommodate higher frequency breach events
- individual risk modifiers for the quality of the security organization, technical controls, logical controls, loss/event history
- actuarial underpinnings largely absent given the nature of threats
- pricing largely determined by simple supply and demand

Carriers have scrambled to react to game changing developments…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HIPAA
CA SB1386
HITECH

Key Cyber Pricing Challenges

- unlike natural catastrophes, cyber offers no historical record to model
- ‘zero day’ vulnerabilities, new threat vectors
- cyber terrorism

Industry Issues

- future development of the regulatory environment (US, Europe, ROW)
  - privacy focus

- aggregation issues – key concern on both direct carrier and reinsurance sides
  - cloud computing
  - malicious code (Stuxnet)
  - vulnerability in common networking equipment, software tools

- industrial espionage
  - led by state actors China, Russia

- retail breaches