

Index

- Accenture, 42–43
- Active Nonlinear Tests (ANTs), 167
- Adaptive walk, 32
- Adobe Corporation, 92
- Affective paradigm, 84
- Agent-based simulation, 40
- Agents:
 - in complex systems, 11, 63
 - cooperation among, 108, 203
 - functions and, 15
 - heuristics and, 171
 - levels of influence, 106–108
 - in networks/systems, 17, 39, 90
- Air Taxis, 55
- Airwalk Shoes, 94–95
- Akerloff, George, 65
- Allais, Maurice, 64
- Allais Paradox, 64–65
- Allen, Paul, 26
- American Superconductor, 59
- Amplification(s). *See also Social Amplification of Risk Framework (SARF)*
 - Airwalk Shoes and, 94–95
 - crowd behavior/triggers, 90–91
 - defined, 101
 - generally, 89–90
 - Madoff affair case study, 98–99
 - of real losses, embedded, 95
 - of risk, 95–98, 101
 - risk assessment and, 99–101
 - start-ups and, 91–92
 - tipping points and, 89, 90, 92–94
- Analysts, 58–59
- Analytical process, 83–85
- Anchoring, 68
- Animal Spirits* (Akerloff and Shiller), 65
- Annealing, 141
- ANTs. *See* Active Nonlinear Tests (ANTs)
- Apple, Inc., 92
- Apple-buying example:
 - Expected Utility and, 65
 - present value equation and, 11–12
 - social embeddedness and, 105–106
 - Traditional Economics and, 37
 - value and, 3–4
- Applied mathematics, 16
- Arenson, David and Cynthia, 99
- Arthur Andersen, 138
- Artificial Intelligence, 194
- Ashby's Law, 191
- Atlantic Monthly*, 132–133, 134
- Autonomy, 146
- Avoidance, 98
- Axelrod, Robert, 75, 76
- Axiomatic paradigms, 80
- Axtell, Robert, 39
- Bacon, Kevin, 20–22, 45
- Banesto, 113
- Bankruptcy protection, 56
- Barings, 150
- Bartering, 4–5
- Basel Committee, 178
- Baselines, 150
- Bear Stearns, 9, 51, 85
- “Beating the market,” 35
- Behavioral Economics:
 - described, 10
 - experts in, 64–65

- Behavioral Economists, 42
 Behavioral Finance, 63
 Behavioralists, 10
 Beinhocker, Eric, 30–32, 37–38, 39, 190
 Belief systems, 7–9
 Bell Curve, 123, 125, 126
 Best Buy, 146
 Biases:
 anchoring, 68
 confirmation bias, 71
 control, illusion of, 71
 disposition effect, 71
 endowment effect, 71
 gambler's fallacy, 72
 groupthink, 71
 loss avoidance, 68–69
 mental accounting, 72–73
 money illusion, 71
 overconfidence effect, 70
 probability and, 67
 projection bias, 70
 self-serving bias, 70
 status quo bias, 72
 sunk cost fallacy, 71
 survivorship bias, 72
 trust and, 67
 tunneling, 72
 Bill and Melinda Gates Foundation, 27
Black Swan, The (Taleb), 86, 165, 167, 174
 Board-chief executive relationship, 184–186
 Board of directors:
 Duty of Loyalty/Duty of Care, 53–54
 member duties, 180–181
 organizations and, 178
 role of, 178–179
 unitary, corruption and, 188–189
 Bouazizi, Mohammed, 93
 Boundaries:
 concept of, 201
 risk capital and, 206
 rules for, 203
 Bounded Rationality:
 coining of expression, 42, 64
 Nobel Prize and, 198
 Brigham Young University, 145
 Building an economy, 39–41
 Business continuity risk, 160
 Business Judgment Rule, 180
 Business plans, 7–8
 “Butterfly’s Wings” question, 19
 Cairo, Egypt, 25, 33–34
 Canada, 53, 178
 Capital, 8
 Capital One Financial, 138–139
 Carnegie Mellon, 167
 Carver, John and Minnam, 181
 Carver Method:
 board-chief executive relationship, 184–186
 “control” and, 193
 control/self-control in, 193
 core of model, 181
 ends and means, 181–183
 “nested box,” 193
 nested policies, 183–184
 network and, 187–188
 Network Governance model and, 191
 subsystems and, 186–187
 Case study:
 Iceland/credit crisis, 59–60
 Madoff affair, 98–99
 Catastrophic failures, 30, 32–33, 80, 81, 83
 Celati, Luca, 86
 Change:
 entrenched entities and, 10
 organizational value and, 50–51
 systems and, 18
 Chaordic, 194
 Chaos, 18–19, 91
 Charities. *See also* Nonprofits
 suppliers and, 54–55
 value and, 7, 8
 Chicago School of economics, 35–36, 37
 Chief Executive, board and, 184–186

- Chief Risk Officer, 171
- China, 151
- Choice(s). *See also* Outcomes
 change and, 174
 framing of, 148–149
 rules and, 203
- Cities, 200–202
- Citigroup, 114, 134
- Clients, 51–52
- Closed systems, 17–18, 188
- Coase, Ronald, 198
- Coffee network, 22–23
- Collaboration, 33, 147
- Collective-choice arrangements, 206
- Columbia Business School, 80
- Committee of Sponsoring
 Organizations (COSO), 100
- Commons:
 management of the, 152, 202–205
 risk capital as, 205–206
- Commonwealth Association for
 Corporate Governance, 178
- Communication. *See also* Social
 network
 amplification and, 96
 within networks, 23, 50–51
 role of, 147
- Complexity, 191
- Complexity catastrophes, 109
- Complexity Economics:
 bounds of rationality, 41–42
 building an economy, 39–41
 emergence of, 11, 63
 key takeaways, 46
 networks, evolution, social
 interaction, 44–45
 schools in conflict, 35–36
 timeliness, stability and, 42–44
 Traditional Economics and, 36–38
- Complexity Science, 200
- Complex systems. *See also* Systems
 theory
 agent interaction in, 11, 63
 “Butterfly’s Wings” question, 19
 “complexity collapse,” xvi–xvii
 explained, 11
 innovation and, 146
 perceptions and, xvii
 “somethings” and, 16, 146
- Complicated systems, 11
- Computer simulation, 39–41
- Conference Board of Canada, 178
- Confirmation bias, 71
- Conflict-resolution mechanisms, 206
- Congruence with local conditions, 206
- Connaught, 56, 57
- Connectors, Mavens, and Salesmen,
 94–95, 96
- Contract workers, 52–53
- Controlled system, 17
- Cooperation, 73
- Cornell University, 146
- Corporate culture, 17
- Corruption
- COSO. *See* Committee of Sponsoring
 Organizations (COSO)
- “Cost to Firms of Cooking the Books,
 The” (paper), 57
- Cousin Louie loan, 5–7, 56
- Credit crisis/Iceland, 59–60, 85
- Creditors, 56–57
- Credit ratings, 162–163
- Credit risk, 159
- Crisis situations. *See* Self-organizing
 groups
- Crowd behavior, 90–91, 93
- Crutchfield, Jim, 31
- Cryptography, 132–133
- Culture, 17
- Customers, 51–52
- Dark Side of Risk Management, The*
 (Celati), 86
- Darley, John, 8
- Darley’s Law:
 case studies and, 150
 metric-based incentive systems, 148
 objective incentive systems and,
 147–148, 149
 Prospect Theory and, 148–149

- Decision Research, 81
Dell Computer, 138
Dennett, Daniel, 31
Deutsche Bank, 59
Disaster response groups, 25–26
Discounting:
 equation and, 12
 exponential, 69
 hyperbolic, 69–70
 of “somethings,” 68–69
Discount rates (DRs), 12–13
Disposition effect, 71
Distribution of outcomes:
 average of all outcomes, 125
 fat tails, 127–128
 negatively skewed, 136, 164–165, 171
 normal (*see* Normal Distribution)
 positively skewed, 136, 137, 171
 risk management and, 161
 tails of, 129, 163, 166
Distributive governance. *See*
 Networked and distributed
 governance
Diversification, 172
DNA sequences. *See* Evolution, game of
Domino effect, 16
Dread Risk, 81, 82–83, 87, 98, 101
Drive (Pink), 145
DRs. *See* Discount rates (DRs)
Drucker, Peter, 147
Dukakis, Michael, 97
Dunbar, Robin, 111
Dunbar’s Number, 111
Duty of Loyalty/Duty of Care, 53–54,
 180–181
Eclipse Aviation, 55–56
Economic capital, 9
Economic crises, 139
Economic governance:
 bringing it together, 206
 cities/organisms/organizations,
 200–202
 management of the commons,
 202–206
 markets and/or hierarchies, 197–199
 risk capital as commons, 205–206
Economics. *See* Behavioral Economics;
 Complexity Economics;
 Traditional Economics
Economist, 10, 60, 194
Edison Electric Institute, 163, 164
“Educated guesses,” 66
Efficient markets, 35–36
Eldridge, Niles, 45
Embeddedness, 90
Employees, 52–53
Endowment effect, 71
Enron, 138, 150
Enterprise:
 analysts and, 58–59
 board of (*see* Board of directors)
 case study: Iceland/credit crises, 59–60
 creditors and, 56–57
 customers of, 51–52
 employees, contract workers and,
 52–53
 executive leadership of, 52–53
 influencers of, portfolio view,
 171–174
 investors and, 52
 keystones, values, systems and, 49–50
 regulators and, 57–58
 retirees and, 59
 risk, 160
 social network of, 50–51
 suppliers and, 54–56
 value/how we look, 60–61
Enterprise Risk Management (Lam),
 171
Entrenched entities, 10
Environment:
 establishment of, xviii
 open system and, 18
 organization and, 50
Environmental risk, 160
Epstein, Joshua, 39
Equilibrium:
 economies, prices and, 42
 system and, 17

- Equitable ownership, 194
 Equity analysts, 58–59
 Error rates, 162
 Error terms, 18
 Evolution:
 game of, 30–33
 kinship and, 76
 networks, social interaction and, 44–45
 as risk governance, 159
 Evolutionary Psychology, 74
 Evolutionary theory, 39
 Executive leadership:
 board-chief executive relationship, 184–186
 employees, contract workers and, 52–53
 Expected Utility, 65
 Expected value, 161–162
 Experts, 86–87
 Exponential discounting, 69
 External/internal parties, 61
 Externalities, 151–152

 FaceBook, 19, 20
 Failure. *See also* Dread Risk
 catastrophic, 30, 32–33
 partial, 30, 32–33
 risk, success, and, 29–30
 Single Point of Failure risk, 194
 Fairness, 73–74
 Fat tails, 127–128, 164, 165
 Feedback, 17
 Financial capital, 168, 169
 Financial crisis:
 of 2007, 86
 of 2008, 51
 subprime, 68
 First National Bank of Chicago, 35
 Fisher, Roger, 129
 Fitness landscape, 31
 “Five Ws and an H” formula, 143
 Flash Crash, 43
 Flash product, 92
 Flow, 146

Fooled by Randomness (Taleb), 86, 165
 Ford Motor Company, 150
 Foreign currency risk, 161–162
 For-profit businesses, value and, 8
 Framing of a situation, 66–67
 Framing Theory, 65
 Friedman, Milton, 9, 38, 39, 41

 Gambler’s fallacy, 72
 Game(s):
 computer simulation, 39–41
 of evolution, 30–33
 rules-based, 28–29
 Game Theory:
 agents interaction, 63
 Prisoner’s Dilemma (*see* Prisoner’s Dilemma)
 “Garbage in, garbage out” problem, 38
 Gates, Bill, 26
 GDP. *See* Gross Domestic Product (GDP)
Getting to YES (Fisher and Ury), 129
 Gladwell, Malcolm, 89, 92–93, 94, 95, 96
 Goal-setting, 147
 “Going viral,” xvii, 89, 93, 94–95
 Goldman Sachs, 113
 Gould, Stephan Jay, 45
 Governance. *See also* Networked and distributive governance
 economic (*see* Economic governance)
 lessons for, 87
 of risk (*see* Governance of risk)
 self-, 203–204
 Governance of risk:
 Active Nonlinear Tests (ANTs), 167, 169
 credit ratings and, 162–163
 expected value and, 161–162
 midfield management, 167–168
 offense, setup for, 168–170
 outcomes/distributions, 164–165
 overall, for organization, 174
 portfolio view, 171–174

- Governance of risk (*continued*)
 risk management profession, 159–161
 risk/risk management and,
 157–159
 scenario analysis and, 166–167,
 168–169
 stress tests and, 166, 167, 168
 venture capital view, 170–171
 Governance of the Commons, 73
 Government intervention, 203
 Graduated sanctions, 206
 Granovetter, Mark, 89, 90, 91, 93, 94,
 95, 96, 104–105
 Gross Domestic Product (GDP), 172,
 173
 Group dynamics. *See* Self-organizing
 groups
 Group of Thirty, 178
 Groupthink:
 as bias, 71
 networks and, 110
 Weak/Strong Ties and, 92
Gulf News, 25
 Gulf War, 193
- Haas School of Business, 198
 Hambrick, Donald C., 145
 Hanover Insurance, 193
 Hardin, Garrett, 152, 203
 Harris, Paul, 27
 Harvard, 37
 Herding, 67–68
 Heuristics, 66, 171
 Hierarchies:
 markets and/or, 197–199
 networks and, 111
 organizational, 110
 subhierarchies, 112
 Transmitters and, 112
 Holland, John, 31
 Honey Crisp. *See* Apple-buying
 example
 Human behavior:
 anchoring, 68
 Behavioral Economics (*see* Behavioral
 Economics)
 biases and, 70–73 (*see* Biases)
 caring/fairness and, 73–74
 decision making, 66–67
 discounting, 69–70
 generally, 63–64
 herding, 67–68
 loss avoidance, 68–69
 Prisoner's Dilemma, 74–76
 risk and (*see* Human reaction
 to risk)
 utility, value of, 65–66
 Human capital, 8. *See also* Employees
 Human reaction to risk:
 experts in field of, 86–87
 governance lessons, 87
 perception and (*see* Perception of
 risk)
 processing risk, 83–85
 quantification as coping mechanism,
 85–86
 Human resources. *See* Contract
 workers; Employees
 Hyperbolic discounting, 69–70
- IBM, 138
 Iceland/credit crisis, 59–60, 85
 Illusion of control, 71
 Incentive systems:
 metric-based, 148, 149
 motivation and, 151
 objective, 147–148, 149
 Indiana University, 202
 Information:
 asymmetry, 179
 in systems, 18
 transmission of, 91–92
 Transmitters, Receivers, and Signals,
 96–98
 value, 17, 23
 Innovation:
 rules-based games and, 28
 unconnected beginnings, 26–28
 INSEAD School of Business, 51
 Institute of Directors, 178
 Insurance risk, 160
 Internal/external parties, 61

- International Corporate Governance
Network, 178
- International Institute for Self-Governance, 188
- Internet-based social networks. *See* Social network
- Intervention, 18
- Interventionists, 10, 64, 197
- Investors, 52
- Invisible Hand:
human psychology and, 64
marketplace feedback and, 18
open market and, 9–10, 197
- iPhone, 92
- Jain, Dipak, 51
- John Lewis Partnership, 192
- J. P. Morgan, 113
- JPMorgan Chase, 52
- Just-in-time-delivery, 54
- Kahneman, Daniel, 10, 64, 65
- Karpoff, Jonathan, 57
- Kasperson, Roger and Jeanne, 89, 95
- Kaufmann, Stuart, 31, 109
- Keating, John, 52
- Kenyon, Lisa, 168
- Kevin Bacon network, 20–22, 45
- Key Man insurance, 53
- Keynes, John Maynard, 10, 64
- Keystones:
forms of, 49
value, systems and, 49–50, 61
- Kidder Peabody, 150
- Kinship, 76
- Lam, James, 171
- Lattice pattern, 122, 124
- Law of Requisite Variety, 191
- Lee, D. Scott, 57
- Legal risk, 160
- Lehman Brothers, 9
- LinkedIn, 19, 20
- Liquidity:
crises, 51
provider, 85
risk, 160
- Logan, Chris, 192
- Lorenz, Edward, 19
- Loss avoidance, xviii, 68–69, 139–140
- Loyola University, 188
- Macroeconomics, 9, 10
- Madoff affair, 98–99
- Management by Objectives, 146–147, 151
- Market(s). *See also* Stock prices
“beating the,” 35
computer simulation and, 40
efficient, 35–36
hierarchies and/cr, 197–199
open, 9
power of, 45
Market risk, 159
- Martin, Gerald S., 57
- Mass behavior, 90–91, 93
- Mastery, 146
- Matten, Chris, 151
- Mental accounting, 72–73
- Microsoft Corporation, 26–27
- Middle East, xvi
- Midtown Manhattan:
average value/range of values, 123
lattice pattern, 122, 124
normal distribution, 125, 126
path of a problem, 135
potential outcomes, 121–125
random walk across, 119–120
value of journey, 125–126
- Miller, John, 167
- Minimal recognition of rights, 206
- Misrepresentations, 57
- Mission statements, 7
- MIT, 190, 194
- Mondragon Cooperative Corporation, 192, 194
- Money, 5–6. *See also* Foreign currency risk
- Money Illusion, 71
- Monitoring, 203, 206
- Morning coffee network, 22–23

- Motivation:
 Darley's Law and (*see* Darley's Law)
 free externalities and, 151–152
 generally, 143–144
 incentives and, 145–146, 151
 Management by Objectives, 146–147
 management of the commons, 152
 within organizations, 144–145
 Risk-Sensitive Foraging Theory and,
 150
- Mubarek, Hosni, 33
- Multiple Points of Failure, 140
- National Aeronautic Association, 55
- National Association of Corporate
 Directors, 178
- National Australia Bank, 150
- Natural disasters, 25–26, 80. *See also*
 Self-organizing groups
- Natural systems, 49
- "Nature of the Firm, The" (paper), 198
- Negative feedback, 17
- Negatively skewed distribution, 136,
 164, 171
- Negative risk, 69
- Negative stigmatization/branding,
 97–98
- Nested enterprises, 206
- Nested policies, 183–184
- Network(s). *See also* Trust, in networks
 agents in, 39, 106–108
 complex, 109–112
 dense, 109, 110
 evolution, social interaction and,
 44–45
 hierarchical, 111
 internal/external parties, 61
 people in, 189–191
 strong ties (*see* Strong Ties in
 networks)
 weak ties (*see* Weak Ties in networks)
- Networked and distributive
 governance:
 board-chief executive relationship,
 184–186
- board member duties,
 180–181
- board's role and, 178–179
- Carver Method and, 181
- ends and means, 181–183
- generally, 177
- integration, distributive models and,
 193–194
- nested policies, 183–184
- network, bringing in,
 187–188
- people in network who care, 189–191
- principal-agent relationships, 179–180
- rollout, 191–192
- subsystems and, 186–187
- transparency and, 192–193
- unitary board, corruption and, 188–
 189
- Network Governance, 188, 191, 193
- Network graphs, 20, 21, 22, 23
- Network science, 16
- Network Theory:
 coffee network, 22–23
 power of relationships, 22
 "Six degrees of Kevin Bacon," 20–22
 social network sites, 19, 20
- New York. *See* Midtown Manhattan
- New York Times*, 89
- New York University, 113
- Nobel Prize in Economics,
 64, 198
- Nobel Scientific Committee, 205
- Nonequilibrium setting, 43
- Nonlinear dynamic systems, 19, 44–45
- Nonprofits. *See also* Charities
 analysts and, 58
 board members, 54
 customers of, 51
 investors and, 52
- Normal Distribution:
 Bell Curve representing, 123
 expected value and, 163
 of journey endpoints, 125
 positive and negative values in, 126
- Nuclear power plants, 95

- Obama administration, 37
- Objectives, 146–147
- O'Brien, Bill, 193
- OECD. *See* Organization for Economic Cooperation and Development (OECD)
- Open market, 9–10, 197
- Open systems, 17–18
- Operational risk, 160
- Opportunity, values and, 4
- Option-based compensation, 144–145
- Organisms, 200–202
- Organizational life, 128–129
- Organizational value, 50
- Organization(s):
- cities, organisms and, 200–202
 - environment and, 50
 - as keystone element, 50
 - self-organization and, 33–34
 - social network of, 50–51
 - types of, 8
- Organization for Economic Cooperation and Development (OECD), 178
- Origin of Wealth, The* (Beinhocker), 30, 37, 190
- Ostrom, Elinor, 73, 202–205
- Ostrom, Vincent, 202
- Outcomes. *See also* Fat tails; Normal Distribution
- average, 123
 - choices/probabilities, 122
 - of complex interactions, 119
 - distribution of, 163, 164 (*see* Distribution of outcomes)
 - uncertainty and, 127, 128
- Overall governance, 174
- Overconfidence effect, 70
- Owner, acting like an, 144
- Partial failures, 30, 32–33
- Path-dependent system, 44
- Path of a problem:
- calculation errors/spreadsheets, 134–135
 - potential impact, 134, 135–136
 - uninterrupted problems, 136
 - in well-governed organization, 136, 137
- Pattern(s):
- of behavior, 36
 - dynamic and nonlinear systems, 44–45
 - recognition, 42
- Penn State, 145
- Pension fund/pension plan, 52, 58
- Perception of risk:
- catastrophic risk/loss, 79–80
 - Dread Risk, 80, 81, 82–83
 - paradigms, 80
 - Risk of the Unknown, 80, 82–83
 - value and, xvii, 16
- Perceptions, xvii, 3, 61
- Pink, Daniel, 145–146, 147
- Piper Jaffray, 168
- Policy Governance, 181
- PolioPlus program, 27–28
- Political capital, 8
- Political economies:
- entities in, 172
 - as open systems, 18
 - suppliers and, 55
 - value and, 8
- Political organizations. *See also* Self-organizing groups
- board of directors, 54
 - customers of, 51
 - suppliers and, 55
- Political risk, 160
- Political systems, xvi
- Political uprising group, 25, 33–34
- Politics/politicians:
- analysts and, 58
 - campaigns/creditors to, 56
 - fear/polarization and, 97
 - investors and, 52
- Pollution, 151
- Ponzi scheme, 98–99
- Portals, 31, 33
- Portfolio approach, 201

- Portfolio view of enterprise, 171–174
- Positively skewed distribution, 136, 137, 171
- Power laws, 128, 166, 167, 200–201
- Power of relationships, 22
- Practice of Management, The* (Drucker), 147
- Present value equation:
 - components of, 12
 - discounting, 12
 - generally, 11
 - investments/perceived risk, 13
 - “somethings” and, 13–14
- Princeton University, 8, 147
- Principal-agent relationships, 179–180
- Prisoner’s Dilemma:
 - common resources and, 203
 - cooperation and, 108
 - described, 74–75
 - “friends” and “enemies,” 75–76
 - programmatically behaviors and, 75
- PRMIA. *See* Professional Risk Managers’ International Association (PRMIA)
- Probability, 67
- Probability distribution, 123. *See also* Distribution of outcomes
- Problem, path of. *See* Path of a problem
- Problem Response Team, 168
- Professional Risk Managers’ International Association (PRMIA), 113, 178
- Projection bias, 70
- Project risk, 160
- Prospect Theory:
 - framing of a choice, 148–149
 - risk-based decisions and, 64, 65–66
 - utility functions and, 127
- Protests, 93
- Psychologists, 64
- Psychology. *See* Behavioral Economics
- Psychometric paradigm, 80
- Punctuated equilibria, 45
- Purpose, 146
- Quality control, 162
- Quantification, 85–86
- Quasi-stochastic outcomes, 119
- Rationality, 41–42
- Reciprocal altruism, 73
- Reciprocity, 73, 74
- Regulation, social, 107
- Regulators, 57–58
- Relationships, power of, 22
- “Reputational penalty,” 57
- Reputation risk, 160
- Resiliency:
 - development of, 140–141
 - loss avoidance and, 139–140
 - path of a problem (*see* Path of a problem)
 - points of failure and, 132–134
 - unexpected problems and, 132
 - Value Equation and, 131, 140, 141
- “Results-Only Work Environments” (article), 146
- Retirees, 59
- Rewards. *See* Incentive systems
- Riotous behavior, 90–91
- Risk(s). *See also* Dread Risk; Human reaction to risk
 - amplification (*see* Amplification(s))
 - assessment grid, 100–101
 - aversion, 65–66
 - based decisions, 64
 - Capital (*see* Risk capital)
 - critical, resiliency and, 137–139
 - defined, 29
 - event, stigmatization and, 97–98
 - governance of (*see* Governance of risk)
 - identification, 170
 - loving behavior, 150
 - management of (*see* Risk management)
 - negative, 69
 - perception of (*see* Perception of risk)
 - processing, 83–85
 - social amplification of, 95–98

- tolerance, 168
- transfer, 158
- value and, xv, xvi
- Risk capital:
 - as commons, 205–206
 - costs and, 169
 - requirements, 168, 169
 - subdivisions and, 173
- Risk management:
 - around expected value, 161–162
 - defensive, 161, 167–168, 170
 - governance of, 157–159
 - profession/specializations, 159–161
 - risk and
 - trust and, 114
- Risk of the Unknown, 80, 82–83, 85, 87, 192
- Risk-Sensitive Foraging Theory, 150
- Rollout, 191–192
- Rotary International, 27
- “Rule of 150,” 111–112
- Rules-based games, 28–29
- “Rules of thumb,” 66

- Salomon Brothers, 113
- Sanctions, 206
- Sanders, William Gerald, 145
- Santa Fe Institute, 37, 39, 109, 200
- SARF. *See Social Amplification of Risk Framework (SARF)*
- Savings and Loan crisis, 52
- Scenario analysis, 166–167, 168–169
- Schneier, Bruce, 132–133, 134, 168
- Science of systems. *See Systems theory*
- Secret agents, 15–16
- Securities and Exchange Commission, 57, 138
- Security risk, 160
- Self-governing systems, 203–204
- Self-organizing groups:
 - beginnings of, 26–28
 - game of evolution, 30–33
 - games, rules-based and, 28–29
 - group dynamics, 25–26
 - organizations and, 33–34
 - risk, success, and failure, 29–30
 - value and, 8
- Self-serving bias, 70
- “Sell” rating, 58
- Senge, Peter, 194
- Senior management. *See Executive leadership*
- Sensitivity to initial conditions, 44
- September 11, 2001 terrorist attacks, 133
- Shiller, Robert, 65
- Simon, Herbert, 10, 42, 64, 198
- Simulations, 28–29
- Single Point of Failure, 194
- “Six degrees of separation from Kevin Bacon,” 20–22, 45
- Sloan School of Management, 190
- Slovic, Paul, 81, 84, 86, 95
- Smith, Adam, 9, 18, 64
- Social amplification. *See Amplification(s)*
- Social Amplification of Risk Framework (SARF)*. *See also Amplification(s)*
 - amplification, stages and, 96, 97
 - described, 89
 - Information Sources, Transmitters, Receivers, and Signals, 96–97
 - utility and, 95
- Social interaction:
 - embeddedness, 105–108
 - networks, evolution and, 44–45
- Social network. *See also Communication*
 - of organization, 50–51
 - success factors, 111
 - web sites, xvi, 19, 20
- Social organizations:
 - board of directors, 54
 - suppliers and, 55
- Social regulation, 107
- Sociocultural paradigms, 80
- “Somethings:”
 - complex systems and, 16, 146
 - discounting of, 68–69
 - Expected Utility and, 65
 - in Value Equation, 12, 13–14, 127

- Sony, 134
 Stability, timeliness and, 42–44
 Stakeholders, 181
 Stand-alone, 49, 50
 Stanford University, 89
 Status quo bias, 72
 Stigmatization, 97–98
 Stochastic outcomes, 119
 Stock option plans, 144–145
 Stock prices. *See also* Market(s)
 American Superconductor, 59
 analytical process and, 85
 good/bad news and, 85
 patterns of behavior, 36
 Salomon Brothers, 113
 value and, xv
 Strategic risk, 160
 Stress tests, 166, 167, 168
 Strong Ties in networks:
 agents and, 109
 groupthink and, 92
 impact/importance of, 90
 information and, 96
 resiliency and, 141
 risk management and, 158
 rollout and, 191
 types of people as, 91
 uncertainties and, 105
 Strong ties in organization, 146
 Subprime financial crisis, 68
 Subsystems, 186–187
 Summers, Larry, 57
 Sunk cost fallacy, 71
 Supervisory Board, 190, 195
 Suppliers, 54–56
 Supply chain risk, 160
 Survivorship bias, 72
 Swiss Bank Corporation, 151
 System(s):
 agents in, 39
 closed, 17–18
 controlled, 17
 information in, 18
 keystones, values and, 49–50
 Multiple Points of Failure, 140
 open, 17–18
 organizational life in,
 128–129
 theory (*see* Systems theory)
 threats to, 137–139
 Systems theory:
 “Butterfly’s Wings” question, 19
 changes in system, 18–19
 closed/open systems, 17–18
 control of systems, 18
 feedback, positive/negative, 17
 information processing functions, 18
 knowledge of system, 19
 origins of, 16
 Tahrir Square, 25, 33
 Taleb, Nassim Nicholas, 86, 165, 166,
 167
 “Talking point memos,” 97
 Technology risk, 160
 TED Global conference, 200
 Temasek Holdings, 151
 Thaler, Richard, 64
 Theory. *See* Game Theory; Network
 theory; Systems theory
Theory of Moral Sentiments, The
 (Smith), 64
 Thomas, Henk, 192
 Threats to system, 137–139
 Three Mile Island incident, 95
 Thresholds of collective behavior, 89,
 90
 Tiebout, Charles, 202
 Timeliness, stability and, 42–44
Tipping Point, The (Gladwell), 89, 111
 Tipping points:
 connectors, mavens, and salesmen,
 94–95
 defined, 91–93
 as social amplifications, 90
 Traditional Economics:
 vs. Complexity Economics, 46
 dominant division in, 197
 feelings and, 73
 individuals in networks, 104

- problems with, xvi, 36–38
 - rational behavior and, 122
 - time, equilibrium and, 42
 - Utility Theory in, 65
- “Tragedy of the Commons, The,” 152, 203
- Transparency, 192–193
- Travelers Group, 113
- Trust:
 - bias and, 67
 - governance, transparency and, 192–193
 - in networks (*see* Trust, in networks)
- Trust, in networks:
 - “acceptable uncertainty,” 104
 - cooperation and, 108
 - “embeddedness,” 104–105
 - generally, 103
 - punishment for violations, 112–114
 - risk management and, 114
 - social embeddedness and, 105–108
 - subhierarchies and, 112
 - value and, 114–115
- Trust Enablement, 104
- Tunneling, 72
- Turnbull, Shann, 188, 189–191, 192
- Tversky, Amos, 10, 64, 65

- Uncertainty, 29, 105, 127
- Union Carbide, 139
- Unitary board
- United Health Group, 144
- United Kingdom, 56, 178
- University of California at Berkeley, 198
- University of Chicago, 37, 38, 64
- Ury, William, 129
- U.S. Army, 150
- U.S. Bancorp, 168
- U.S. government, 134
- U.S. military, 193
- Utility:
 - SARF and, 95
 - value, fat tails and, 127–128
 - value and, xvi, 65–66
 - Value Equation and, 89, 103, 114–115, 131
 - Utility functions, 127
 - Utility Theory, 65

- Value:
 - apple example, 3–4
 - complex systems and, 11
 - creation of (*see* Value creation)
 - defining, 3
 - expected, 161–162
 - factors affecting, xvi, 16
 - governance, transparency and, 192–193
 - how we look affects, 60–61
 - information, 23
 - keystones, systems and, 49–50
 - of money, 5–6
 - perceptions and, xvii, 3
 - resiliency and (*see* Resiliency)
 - risk and, xv, xvi
 - trust and, 114–115
 - utility and, xvi, 65–66, 127–128
 - value and, 7–8
- Value creation:
 - economics and, 9–12
 - games and, 28–29
 - stock prices and, xv
- Value Equation:
 - acceptable uncertainty and, 104
 - additional risk introduced, 150
 - discount rate and, 13, 79, 115
 - explained, 11–13
 - how we look affects our value, 60–61
 - increase in risk and, 90
 - key points, 13–14
 - SARF model and, 95–96
 - “somethings” in, 12, 13–14, 127
 - utility and, 89, 103, 114–115, 131
- Values:
 - commons, viewed as a, 152
 - opportunity and, 4
 - value and, 7–8
- Venture capital view, 170–171

- Vietnam War, 150
Visa International, 191, 194
von Bertalanffy, Ludwig, 16
von Hippel, Eric, 190
- Waitrose, 192
Wall Street, 9
Wall Street Journal, xv
Walter, Ingo, 113–114
Warren, Robert, 202
Watchdog Board, 190, 195
Weak Ties in networks:
 agents and, 109
 heuristics and, 171
- impact/importance of, 90
 information and, 91–92, 96
 resiliency and, 141
 risk management and, 158
 rollout and, 191
- Wealth, xvi–xvii
Wealth inequalities, 40
Wealth of Nations, The (Smith), 64
Weber, Elke, 80, 84, 86
West, Geoffrey, 200
Williamson, Oliver, 198–199, 202
Working capital, 56
World War I story, 108
Wright, Sewall, 31