# Index

ABO (accumulated benefit obligation) 62
accounting 193, 195, 310
accounting rules 217, 263
accumulated benefit obligation (ABO) 62
actuarial cost method 63, 65
actuarial deficit 110, 111
actuarial loss 246–7
actuarial surplus 110, 111
actuarial techniques 310
adverse selection bias
and defined contribution (DC) pension plans 132, 133, 151, 251
and labour productivity in an aging society 94, 98
and stand-alone collective pension plans 264, 267
age
and civil servant pensions in Hesse, Germany 58–9, 60
and cognitive abilities and intelligence 86, 87
composition of labour force 83, 84
deficit hypothesis 88
and experience 85–6, 89–91, 92, 94, 97
and labour productivity 85, 97, 98
see also labour productivity in an aging society
and physical fitness 86, 97
see also aging society
agency factors, in institutional theory 219–20
agency factors in pension delivery ‘aligned interests’ 234, 235, 240, 263
and governance quality, financial implications 232–3
hypothesis testing 223–7
and ideal delivery 233–5
in integrative investment theory (IIT) 222
and stand-alone collective pension plans 265
aging society
and defined benefit (DB) pension plans 261–2
and PAYG (pay-as-you-go) pension systems 3, 261, 309
and stand-alone collective pension plans 268
see also age; labour productivity in an aging society; longevity risk; longevity risk sharing; mortality rates; older workers; population aging in Europe; retirees
Akerlof, George 219–20
‘aligned interests’ 234, 235, 240–241, 263
ALM (asset liability management) 82, 178, 196
Almeida, H. 30, 40
Ambachtsheer, Keith P. 221, 222, 227–8
annuitization, in defined contribution (DC) pension plan design 131–40, 147–50, 161–2
annuity providers
competition 239, 255, 282, 302, 317
problem-solving in providing defined contribution (DC) pension plans 139–40
problems in providing defined contribution (DC) pension plans 131–8
annuity rates, and risks in defined contribution (DC) pension plans 132, 147, 148, 161, 163
APRA (Australian Prudential Regulation Authority) 180, 181, 192, 196, 202–3
Asia 297
assembly lines, labour productivity 86, 88–94, 97
asset allocation
and civil servant pension reform in
Hesse, Germany 68–75, 76–7
defined contribution (DC) pension
plans 115–19, 120–121, 122–4,
129, 130, 147–50, 159, 163
Denmark 200–202, 210
market timing 130
Mexico 204, 206, 207, 208, 210
Netherlands 198–9, 210
security selection 130
strategic 130
see also bonds; cash funds; equities;
investment performance;
investment strategies; T-bills
asset liability management (ALM) 82,
178, 196
asset-liability mismatch risk
and guarantees 246, 247–50, 251–2,
253, 256
and pension gambit 44
and risk-based supervision 184, 187,
188–9, 200, 202
asset/liability modelling 65–8, 76
asset management fees 106, 129, 144–5
asset prices 173, 174, 298, 300–301
asset values
and charges in defined contribution
(DC) pension plans 100–101,
129, 143–5
and guarantees 246–7
and risk in defined benefit (DB)
pension plans 110–114
assets, international comparisons 4–5,
171–2
auditors 169, 170, 176, 193, 194, 195
Australia 170, 171, 172, 202–3, 311
see also risk-based supervision in
Australia, Denmark, Mexico
and the Netherlands
Australian Prudential Regulation
Authority (APRA) 180, 181, 192,
196, 202–3
Australian Securities and Investments
Commission 194
average age, and labour productivity in
work teams 86, 90–91

β, and corporate finance approach to
risk management 30, 40, 41, 44
baby boom generation 6–7, 83, 84, 261
back-loaded benefits 274–6, 318
back-loaded charges 100, 145, 153, 162
see also front-loaded charges
BAKIS 167
Bank of Italy 167
Banking Commission (France) 167
bankruptcy risk 30, 41, 236, 251, 267
banks 302–3
see also Bank of Italy; Banking
Commission (France); central
banks; DNB (Dutch National
Bank); ECB (European Central
Bank)
Basel I 167
Basel II 167–8, 175, 176–7, 184, 314
Battle for the Soul of Capitalism, The
(Bogle) 226
Bauer, R. 20, 223–7
Benartzi, S. 145
Berle, Adolf 219
bid-offer spread 12–14, 16–17
binary variation of outcomes, in
convex risk penalty model 29–31,
33
Black, F. 26, 27, 41, 44, 45, 49, 218
Black-Scholes framework 248–9, 256
Blake, David 60, 115, 125–31, 142,
149–50, 151–2
board committees, and risk-based
supervision in Mexico 177, 181,
182–3
boards of governors 232, 283–4
Bodie, Z. 61, 256
Bogle, John C. 226, 232
bond futures 148–9
bonds
and defined benefit (DB) pension
plans 118, 119, 120, 121
and defined contribution (DC)
pension plans 115, 116, 118,
122, 123, 128, 129, 147, 148
Denmark 200
see also bond futures; government
bonds; limited price index
bonds; long-term bonds;
longevity bonds; survivor bonds
borrowing 267
see also credit risk
Börsch-Supan, Axel 94
complex contingent defined benefit pensions 14–18
complexity, and risk-based supervision in Australia, Denmark, Mexico and the Netherlands 173, 174
compulsory contributions see mandatory contributions; quasi-mandatory contributions
concave pension gambit 44
concave zone, and corporate finance approach to risk management 41, 42–3, 44
Conditional Value at Risk (CVaR) 67, 68, 69, 70, 71, 72–5
conflicts of interest 234, 240–241, 263
Conley, John 221
Consar 193, 195–6, 204
consumer protection 244
contracts 14, 15, 21, 53
see also contractual pension funds (CPF); risk sharing contracts; swap contracts
contractual pension funds (CPF) 239, 240, 241
contrasts of interest 241
contribution holidays 70, 71, 73, 74, 75, 76, 77
correction rate
and civil servant pensions in Hesse, Germany 64, 65, 68–75, 76, 77
flexibility and stand-alone collective pension plans 280–281
risk minimization in defined contribution (DC) pension plan design 119–24, 148
contributions see contribution holidays; contribution rate; defined contribution (DC) pension plan design; defined contribution (DC) pension plans; mandatory contributions; PAYG (pay-as-you-go) pension systems; present value (PV) of future contributions; quasi-mandatory contributions; recovery premiums; reduction in contributions; supplementary contributions (SC); voluntary contributions convex costs 27–8
convex risk penalty model 29–31, 32–9
corporate finance approach 23–4, 27–31, 32–9
corporations see companies
consumer protection 244
consumer protection 244
costs
and concave zone 41
and convex risk penalty model 30, 31, 34–5, 37–9
private pensions 20–21
see also actuarial cost method; asset/liability modelling; charges; dollar cost averaging; OMC (Oversight / Management Costs); operating costs; sales costs
CPF (contractual pension funds) 239, 240, 241
credit 267
credit risk 167–8, 256, 263, 290
CROs (chief risk officers) 181, 182–3
cross-border pension provision 312–13
custody fees 106
CVaR (Conditional Value at Risk) 67, 68, 69, 70, 71, 72–5
DaimlerChrysler AG 88–92
Danish Financial Supervisory Authority (DFSA) 188, 193, 196, 315
DAV (German Association of Actuaries) 57–8
default risk 17–18
deferred annuities 148, 149–50, 151, 163, 264, 274
deferred income government securities (DIGS) 151
deficit hypothesis of aging 88
defined benefit (DB) pension plans
advantages 20–21
agency factors in pension delivery 223–5
civil service pensions in Germany 52–4
see also civil service pension reform in Hesse, Germany
and conflicts of interests 263, 290
demise of 261–3, 290
Netherlands 171, 172, 173
risk 110–114, 118–19, 120, 262–3
risk-based supervision 165, 215
see also risk-based supervision in
Australia, Denmark, Mexico and the Netherlands
US 243, 251, 252
defined contribution (DC) pension plan design
charges 99–107, 129, 133–8, 139–45
changing and disguised charging structures 104–7
improvements 140–145, 153, 162–3
reduction in contributions 103–4, 105
reduction in yield 101–3, 104, 105
and risk 133–8, 139–40
types 100–101, 129
conclusion 152–3
design improvements 140–152, 153, 160–164
charges, investment performance and incentives 140–145, 153, 162–3
government amelioration of market failures 151–2
high lapse rates 145–7
investment management and annuitization 147–50
discussion 160–164
fund annuitization 131–40, 147–50
incentives 100, 106, 144, 152–3
income profile 160–161
investment performance 125–31, 140–145, 153, 159, 162
improvements 140–145, 153
managed funds 126–31, 159
unit-linked funds 125–6, 127
investment strategy 109–24, 147–50, 163
improvements 147–50, 163
maximizing risk-adjusted expected value 114–19
minimizing contribution rate risk and surplus risk 119–24
risk, compared to defined benefit (DB) pension plans 109–14, 118–19, 120, 121
lapses 107–9, 145–7
regulation 160–161
defined contribution (DC) pension plans
agency factors in pension delivery
Australia 171, 172
Denmark 171, 172
design (see defined contribution (DC) pension plan design)
Italy 238–41
mandatory contributions 134–5, 136, 137–8, 145–7, 151, 161, 311–12
Mexico 171, 172
risk-based supervision 165, 166, 215
see also risk-based supervision in
Australia, Denmark, Mexico and the Netherlands
UK 243–4
US 243–4, 251
demographic risk 11
Denmark 170, 171, 172, 199–202, 315
see also DFSA (Danish Financial Supervisory Authority); risk-based supervision in Australia, Denmark, Mexico and the Netherlands
deposit administration plans 115
derivatives 148–9, 200, 202, 204
deterministic lifestyle investment strategy 118–19, 121, 124
developed economies 297, 311–12
DFSA (Danish Financial Supervisory Authority) 188, 193, 196, 315
Digs (Danish Financial Supervisory Authority) 188, 193, 196, 315
disclosure
Basel II 168
charges in defined contribution (DC) pension plans 104–7
and guarantees 246, 256
risk-based supervision in Australia, Denmark, Mexico and the Netherlands 178–9, 180, 193, 194, 195, 209
Solvency II 169
discontinuity principle 269–70
discount rate
and civil servant pensions in Hesse, Germany 60, 61, 62–4, 75, 76, 82
and risk-based supervision in the Netherlands 184, 185
discounting, and corporate finance approach 28
diversified credit risk 263, 290
DNB (De Nederlandsche Bank) 167, 192, 196
dollar cost averaging 148–9
Drucker, Peter 220, 222
Düzgün, I. 94

early retirement 54, 83
early warning indicators 190, 191, 193
ECB (European Central Bank) 295, 298, 303, 304
economics, and labour productivity in an aging society 88
economies of scale 234–5
efficiency gains 173, 174, 204, 205, 209, 271
emerging economies 297, 298, 311
employee turnover see labour mobility employees
and civil servant pensions in Hesse, Germany 55–6, 60–63, 76
participation in stand-alone collective pension plan governance 283–4
value in bid-offer spread for complex contingent defined benefit pensions 16–17
value in bid-offer spread for simple defined benefit pensions 12–14
value in complex contingent defined benefit pensions 16, 18
value in Law of One Price 11–12
see also female workers; male workers; older workers; younger workers
employers
default risk in complex contingent defined benefit pensions 17–18
and defined benefit pensions 53
and guarantees 244
and labour market flexibility 279–80
enterprise risk management (ERM)
and defined benefit pensions conclusions 44–5
corporate finance approach 27–31, 32–9
discussion 48–50
and history of risk management 24–6
and portfolio management versus modern corporate finance 23–4
present situation 26
shorting the market 31, 40–44, 49
entrepreneurship 279, 318
equities
and defined benefit (DB) pension plans 118, 119, 120, 121
and defined contribution (DC) pension plans 115, 116, 118, 122, 123, 125, 128, 129, 141–2, 147–8, 149, 150
and pension risk management 25–6
and shareholder value 26
equity index 149
ergonomics, and labour productivity in an aging society 87–8
EU 312–13
see also Euro interest rates; European Central Bank (ECB); European government bond index fund
Euro interest rates 66–7, 309
Europe
PAYB (pay-as-you-go) pension systems 259–61
pension fund governance 221
risk-based supervision 167–9, 175, 176–7, 184, 314–15
see also risk-based supervision in Australia, Denmark, Mexico and the Netherlands
see also EU; population aging in Europe; individual countries
European Central Bank (ECB) 295, 298, 303, 304
European government bond index fund 65, 66, 67, 68, 69, 70–71, 73, 74, 76
Excellence in Pension Fund Management (Ambachtsheer ... et al.) 221
expected present value (EPV), and charges in defined contribution (DC) pension plans 133
expected utility maximizers 24, 25
expected value maximization, risk-
adjusted see risk-adjusted
expected value maximization experience, and age 85–6, 89–91, 92, 94, 97
explicit state government debt, and
civil servant pensions in Hesse, Germany 61, 62, 76

factor prices 296
fair value accounting 310
fair values
bid-offer spread 12–14, 16–17
complex contingent defined benefit
pensions 14-18
conclusions 18–19
discussion 20–21
Law of One Price (see Law of One
Price)
practical applications 8–9
families 278, 279–80
Farr, James L. 87
fees see asset management fees;
broking fees; charges; custody
fees; transfer fees
female retirees 56
female workers
and civil servant pensions in Hesse,
Germany 55, 56
and defined contribution (DC)
pension plans 115, 116–17, 118
and labour productivity in mixed
gender work teams 92
females 134–5, 137–8
see also female retirees; female
workers
fertility rates 6, 259–60, 278
final salaries
and civil service pensions in
Germany 54
and defined contribution (DC)
pension plans 115, 121, 122,
160–161
and risk-based supervision in the
Netherlands 197–8
financial distress
and convex risk penalty model 30, 31
and corporate finance approach to
risk management 30, 31, 40, 49
and occupational pensions 262–3
and stand-alone collective pension
plans 267–8, 271, 272, 281, 291
financial education 244, 282–3, 304,
317
see also financial illiteracy
financial engineering (FE), in
integrative investment theory (IIT)
222
financial illiteracy
and agency factors in pension
delivery 226–7
and defined contribution (DC)
pension plans 161
and guarantees 244
and individual risk 6, 21, 304
and stand-alone collective pension
plans 264
Financial Institutions Risk Analysis
Method (FIRM) 167, 190, 192–3,
196, 197
financial instruments 303–4
financial intermediation 5, 20–21, 282,
302–3
financial markets 139
financial planning 280–283
Financial Services Authority (FSA)
102, 109, 167
Finkelstein, A. 133–8
FIRM (Financial Institutions Risk
Analysis Method) 167, 190,
192–3, 196, 197
firms see companies
Fisher-Margrabe exchange options
113–14
Fisher Separation Theorem 24, 25
fixed contribution rate (CR), and civil
servant pension reform in Hesse,
Germany 68–72
flexible financial planning 280–283
flexible income programmes 149–50
flexible labour markets 278–80
flexible liabilities 270
floored income programme 150
fluctuating benefits, and stand-alone
collective pension plans 292
fluctuating funds 268–9
Fortune and Folly (Conley and
O’Barr) 221
France 167
front-loaded charges 100, 104, 106, 144, 145
see also back-loaded charges
Froot, K.A. 30
FSA (Financial Services Authority) 102, 109, 167
full maturity values, in defined contribution (DC) pension plans 105–6
fund value see asset values
future generations see
intergenerational benefits;
intergenerational risk;
intergenerational risk sharing
futures 148-149

General Theory of Employment, Interest and Money, The (Keynes) 219
German Association of Actuaries (DAV) 57–8
German Federal Supervisory Office 167
Germany 52–6, 167, 244
see also civil service pension reform in Hesse, Germany; labour productivity in an aging society
gerontology, and labour productivity in an aging society 87
global equity index fund 65, 66, 68, 69, 70–71, 73, 74, 75, 76, 77
Global Pension Statistics (OECD) 4
Gold, J. 41, 44, 62
Gollier, C. 20
‘good governance’ 234–5
Goode Report 151
governance quality 221–2, 317
governance quality in pension delivery agency factors, financial implications 232–3
economies of scale 234–5
‘good governance’ 234–5
hypothesis testing 227–8
ideal delivery 233–5
importance 309–10
in integrative investment theory (IIT) 222
NVA-CEO coefficients 229–31
and organization performance 228–9
stand-alone collective pension plans 283–4
government bonds 52–3, 60, 139, 149, 151, 318
see also European government bond index fund
Government Investment Fund of Japan 309–10
governments
certainty in 255
and guarantees 244–5, 251–2, 253
see also PBGC (Pension Benefit Guaranty Corporation); PPF (Pension Protection Fund)
political risk in stand-alone collective pension plans 269–70, 292
and PPPs (Personal Pension Plans) 151–2
growth 295–7
see also productivity growth
growth, long-term, and population aging 295–7

guarantees
asset-liability mismatch risk and capital adequacy 247–50, 251–2, 253, 256
defined benefit (DB) pension plan demise 261–3
defined contribution (DC) pension plans 161, 172, 173, 244
disclosure 246, 253, 256
discussion 255–7
and governments 244–5, 251–2, 253
importance 244
and managed funds 244
and occupational pension schemes 244–5
PBGC (Pension Benefit Guaranty Corporation) 41, 44, 49, 243, 251–2
PPF (Pension Protection Fund) 44, 49
policy recommendations 253
pricing 246–50, 256
principles 245–7
and risk-based supervision in Australia, Denmark, Mexico and the Netherlands 172, 173, 199, 215–16
Index

and stand-alone collective pension plans 267, 270, 273–4, 292
and swap contracts 252, 253, 256
and corporate finance approach to risk management 41, 44, 49

Guarantors and corporate finance approach to risk management 41, 44, 49

and guarantees 246, 252, 253
and risk-based supervision in Denmark and the Netherlands 197, 200, 216

Henderson, R. 57
Henkens, K. 255
Hesse, Germany 54–6
see also civil service pension reform in Hesse, Germany

Holland see Netherlands households see individuals
human capital and defined benefit (DB) pension plans 261–2
and labour market flexibility 278, 279–80, 318
and longevity risk 147, 148, 276, 277
and PAYG (pay-as-you-go) pension systems 259–60
and retirement age increases 278
and stand-alone collective pension plans 266, 267, 268–9, 270, 274, 277, 278, 279–80, 316
and stochastic lifestyling 147, 148

IAIS (International Association of Insurance Supervisors) 168
ICPM (International Centre for Pension Management) 223, 227, 234

idiosyncratic risk 27, 28

IFAs (independent financial advisers) 20–21, 107–8
IIT (Integrative Investment Theory) of pension delivery see Integrative Investment Theory (IIT) of pension delivery
implicit taxes 268–70
implied pension debt for current civil servants, in Hesse, Germany 60–63
Improving Pension Fund Performance (Ambachtsheer, Capelle and Scheibelt) 221
incentives, defined contribution (DC) pension plans 100, 106, 144, 152–3
income profile, and defined contribution (DC) pension plan design 160–161
independent financial advisers (IFAs) 20–21, 107–8
indexation and civil servant pension reform in Hesse, Germany 81
and defined benefit (DB) pension plans 118
and defined contribution (DC) pension plans 149–50, 151, 163
long-term bonds 303
longevity bonds 277, 317–18
and stand-alone collective pension plans 264, 266, 271, 277–8, 291
individual risk 6, 21, 303
individuals differences in age-related labour productivity 85, 86–7, 88
as expected utility maximizers 24, 25
inadequate pension provision 146–7
information needs 282, 317
investment decisions 21
risks in defined contribution (DC) pension plans 133–8, 139
taylor-made policies 281–2, 302–3 see also children; employees; families; females; financial illiteracy; individual risk; males; parents; retirees; spouses
inflation risk and civil servant pensions in Hesse, Germany 60, 62, 82

Dirk Broeders, Sylvester Eiffinger and Aerdt Houben - 9781847209924
Downloaded from Elgar Online at 04/13/2019 08:05:37AM via free access
and defined benefit (DB) pension plans 113
and defined contribution (DC) pension plans 122, 132, 139, 147, 148, 151
information, for individuals 282, 317
information asymmetry and agency factors 220
and agency factors in pension delivery 226, 234, 240, 241
and defined contribution (DC) pension plans 132, 161
information processing, and age 86
insolvency 173–4
see also bankruptcy risk; capital adequacy; solvency
institutional theory of pension delivery 219–22
see also Integrative Investment Theory (IIT) of pension delivery
insurance companies 6, 131–40, 315
integration of supervisory agencies 173, 175
Integrative Investment Theory (IIT) of pension delivery
agency and governance factors, financial implications 232–3
agency hypothesis testing 223–7
CEO scores and NVA 229–31
CEO scores and OMC (Oversight/Management Costs) 231–2
described 222
discussion 238–41
governance hypothesis testing 227–8
governance quality and organizational performance 228–9
and ideal pension delivery 233–5
NVA-CEO coefficient 229-231
intelligence, and age 87
interest rate crises 1, 6, 139, 166, 199–201, 211–12, 215–16, 251, 309
interest rates
and civil servant pension reform in Hesse, Germany 66–7, 82
and civil servant pensions in Hesse, Germany 60, 62
Euro zone 66–7
and risk-based supervision in the Denmark 200–201
and risk-based supervision in the Netherlands 184, 185
risks in defined contribution (DC) pension plans 132, 139, 147, 148, 149, 166, 199–201, 215
see also Euro interest rates; interest rate crises; real interest rates
intergenerational benefits 77
intergenerational risk 259–60
intergenerational risk sharing 20, 266–8, 269–70, 271
International Association of Insurance Supervisors (IAIS) 168
international capital flows 297–8
International Centre for Pension Management (ICPM) 223, 227, 234
international risk-based supervision 169–70
international risk sharing 253
investment see asset allocation; Integrative Investment Theory (IIT) of pension delivery; investment beliefs; investment decisions; investment performance; investment strategies; investment theory; liability-driven investment (LDI)
investment beliefs 222
investment decisions 21
investment performance
and civil servant pensions in Hesse, Germany 60
defined contribution (DC) pension plan design 125–31, 140–145, 153, 159, 162
and governance quality in pension delivery 227–8, 229–31
mutual funds versus pension plans 20–21
stand-alone collective pension plans 292
investment strategies 109–24, 147–50, 163
investment theory 218
IOPS 312–13
Index

Iso-CVaR (Conditional Value at Risk) curve 72–5
Italy 167, 238–41

Japan 297, 309–10
Jin, L. 256
joint-and-survivor annuities 59

Keynes, John Maynard 219
Klein, Stephanie R. 87
Kocken, Theo 256, 263
Koedijk, K. 255
Kotlikoff, Laurence J. 88

labour agreements 170
labour force, age composition 83, 84
labour market flexibility 278–80, 318
labour mobility
and back-loaded benefits 274–5, 318
in civil service in Germany 54, 59, 62, 80
and stand-alone collective pension plans 268–9, 270
labour productivity
older workers 83, 87, 90, 93, 94, 97
and retirement age 83, 98
younger workers 87
labour productivity in an aging society
conceptual framework 84–6
economics, lessons from 88
ergonomics, lessons from 87–8
gerontology and sociology, lessons from 87
and growth 295–6
labour force age composition 83, 84
occupational medicine, lessons from 86–7
work teams, empirical research
conclusion and outlook 92–4
discussion 97–8
results 1: age and experience 89–91, 92, 93
results 2: team composition 91–2, 93
sample and methods 88–9
labour supply, competition 269
labour utilization, growth, in an aging society 295–6
lapses, in defined contribution (DC) pension plan design 107–9, 145–7

Law of One Price
advantages 19
bid-offer spread 12–14
described 9–10
value to employee 11–12
value to shareholder 10–11
LDI (liability-driven investment) 26, 48, 252, 270

legislation
and mandatory contributions 170, 171, 244–5
Pension Protection Act 2006 (US) 251–2

legitimacy 220
Lehmann, B. 126–31, 142
Leibowitz, M.L. 26

liabilities
and risk in defined benefit (DB) pension plans 111, 112–14, 120–121, 122, 123, 124
and stand-alone collective pension plans 270–274
see also asset-liability mismatch risk; asset/liability modelling; liability-driven investment (LDI); liability-immunizing portfolio (LIP); present value (PV) of future pension liabilities
liability-driven investment (LDI) 26, 48, 252, 270
liability-immunizing portfolio (LIP) 122
life annuities 149, 150
life-cycle financial planning 282, 302–3
life-cycle hypothesis of saving 296, 299–300
life-cycle investment 267, 274
life expectancy 6–7, 277–8, 295, 296–7
see also aging society; longevity risk; mortality rates; population aging in Europe
limited price index bonds 151
LIP (liability-immunizing bonds) 122
liquidity constraints, and defined benefit pensions 21
long recovery horizon, and stand-alone collective pension plans 272
long-term bonds 297, 301, 303
long-term growth, and population aging 295–7
long-term investment 82, 115, 264, 270
see also global equity index fund; life-cycle investment
longevity see life expectancy; longevity risk; longevity risk sharing
longevity bonds 151–2, 269, 277, 317
longevity risk
and defined contribution (DC) pension plans 132, 137, 138, 139, 151–2
and funded pension schemes 276
and risk-based supervision in Denmark and the Netherlands 184, 185, 193, 197
and stand-alone collective pension plans 269, 276–8, 291
longevity risk sharing 276–8
Lum, H. 223–8
Lunde, A. 125, 126, 127, 142
Lusardi, A. 6

macroeconomic stability, and stand-alone collective pension plans 271, 272
Maier, G. 87
male retirees 56
male workers
and civil servant pensions in Hesse, Germany 55
defined contribution (DC) pension plans 115, 116–17, 118
and labour productivity in mixed gender work teams 92
males 134, 136–8
see also male retirees; male workers
managed funds 115, 126–31, 141–2, 159, 244
mandatory contributions
Australia 170, 171
defined contribution (DC) pension plans 134–5, 136, 137–8, 145–7, 151, 161, 311–12
international perspectives 311–12
Mexico 170, 171
and stand-alone collective pension plans 264, 267, 282, 291
see also quasi-mandatory contributions
market discipline
Basel II 168
risk-based supervision 169, 170, 176–7
risk-based supervision in Australia, Denmark, Mexico and the Netherlands 178–9, 180, 193–4, 195, 209, 211, 216–17
market failures 151–2
see also inflation risk; longevity risk
Market for Lemons, The (Akerlof) 220
market participants 169, 170, 176
markets 216
see also market discipline; market failures; market participants
Markowitz, H. 25, 218, 222
Marshall, J.C. 221
maximizing risk-adjusted expected value, in defined contribution (DC) pension plan design 114–19, 163
Means, Gardiner 219
Merton, Robert C. 218, 256
Mexico 170, 171, 172, 204–6, 207, 208
see also risk-based supervision in Australia, Denmark, Mexico and the Netherlands
Milevsky, Moshe A. 61
Miller, M.H. 27, 41, 44, 49
minimizing contribution risk and surplus risk, in defined contribution (DC) pension plan design 119–24
minimum capital requirements 169, 188
minimum solvency requirements 184, 185–6, 187
mis-valuation, and complex contingent defined benefit (DB) pensions 15
mismatch risk see asset-liability mismatch risk
Mitchell, Olivia S. 6, 146–7
Modern Corporation and Private Property, The (Berle and Means) 219
Modigliani-Miller conditions, corporate finance approach to risk and defined benefit (DB) pensions 27, 41, 44, 49
monetary policy, and population aging in Europe 293–4, 298–9, 303, 305
Money Management 102, 103, 104
moral hazard 147, 244, 250, 267
mortality improvements 151, 152, 184, 185, 277
mortality rates
and civil service pensions in Hesse, Germany 56–8
and defined contribution (DC) pension plans 132, 133, 136, 137, 138, 150, 151, 152
and risk-based supervision in Netherlands 184, 185
motivation, and labour productivity 98
mutual fund 20–21, 223, 224, 225, 226–7, 232–3, 234
National Pensions Savings Scheme 143, 145
net present value (NPV) projects 28, 29, 30
net value added (NVA) 223–5
net value added (NVA)-CEO coefficients, in governance quality in pension delivery 229–32
Netherlands
confidence in pension funds and insurers 255
pension system 170, 171, 172, 197–9, 244–5, 311–12, 316–17
risk-based supervision 167
see also risk-based supervision in Australia, Denmark, Mexico and the Netherlands
see also stand-alone collective pension plans in the Netherlands
Newton Managed Fund 144–5
North America 221, 223–7
see also US
NPV (net present value) projects 28, 29, 30
NVA-CEO coefficients, in governance quality in pension delivery 229–32
NVA (net value added) 223–5, 229–31, 234–5
O’Barr, William 221
objective function, and civil servant pension reform in Hesse, Germany 68, 81
obligations 62, 273–4
see also guarantees; PBO (projected benefit obligation)
occupational funds 171
occupational medicine, and labour productivity in an aging society 86–7
occupational pensions
and aging society 261–2
Denmark 315
and financial distress of companies 262–3
Netherlands 170, 171, 244–5
US 243
OECD countries 297
OECD Global Pension Statistics 4
offer-bid spread 12–14, 16–17
Office of Fair Trading 153
old-age pensioners see retirees
older workers
and back-loaded benefits 275
experience 85–6, 90, 92, 94
and labour market flexibility 279
and labour productivity 83, 87, 90, 93, 94, 97
and stand-alone collective pension plans 271, 276, 279
in work teams 89–90, 91–2, 93, 94
OMC (Oversight / Management Costs) 231–2, 234
open economy models 297, 298
open pension funds (OPFs) 239, 240
operating costs 246
option pricing theory, and capital adequacy and asset-liability mismatch risk 247–51
option valuation theory 218
organization performance, and governance quality in pension delivery 228–9
organization theory 218–22
Oversight / Management Costs (OMC) 231–2, 234
paid-up plans (PUPs) 104–5, 106
PAIRS (Probability and Impact Rating System) 189, 190, 196, 202, 203
parents 278, 279–80
part-time employment 279
participation, of employees in stand-alone collective pension plan governance 283–4
PATROL 167
PAYG (pay-as-you-go) pension systems 3, 259–61, 275, 309
PBGC (Pension Benefit Guaranty Corporation) 41, 44, 49, 243, 251–2
PBO (projected benefit obligation) and civil servant pension reform in Hesse, Germany 65, 68–70, 71, 72, 73, 74, 75 and civil servant pensions in Hesse, Germany 61–2
pension accelerator 268
Pension Benefit Guaranty Corporation (PBGC) 41, 44, 49
Pension CEO scores see CEO scores
pension debt, and civil servant in Hesse, Germany 60, 61, 62
Pension Fund Trustee Competence (Clark, Caerlewy-Smith and Marshall) 221
pension gambit 41, 44
pension guarantees see guarantees
pension increases, civil servant pensions in Hesse, Germany 61, 63, 64
Pension Protection Act 2006 (US) 251–2
Pension Protection Fund (PPF) 44, 49
pension rights 271–2, 275, 291, 292, 318
Pensions Commission 143
‘perfect storm’ of declining interest rates 1, 6, 139, 166, 200–201, 215–16, 251, 309
performance-related charges, and defined contribution (DC) pension plans 143–5, 153, 162
persistence rates, and defined contribution (DC) pension plans 107–9
Personal Accounts 312
personal insurance policies (PIPs) 239, 240
Personal Investment Authority (PIA) 107–8
Personal Pension Plans (PPPs) see
PPPs (Personal Pension Plans)
Philippon, T. 30, 40
physical fitness, and age 86, 97
PIA (Personal Investment Authority) 107–8
PIPs (personal insurance policies) 239, 240
policy ladders 266
political risk 269–70, 275, 291
population aging in Europe and financial markets 299–302 and international capital flows 297–8 and long-term growth 295–7 and monetary policy 293–4, 298–9, 303, 305 and real interest rates 297 see also aging society
population dynamics, and civil service pensions in Hesse, Germany 58–60 portfolio management, versus modern corporate finance 23–4 portfolio theory 218, 222 portfolio value, and civil servant pension reform in Hesse, Germany 65–6 Poterba, J. 133–8 poverty alleviation, and PAYG (pay-as-you-go) pension systems 260–261 PPF (Pension Protection Fund) 44, 49
PPPs (Personal Pension Plans) charges 100, 102, 103, 104, 153, 264 fund annuitization 131–40, 147–50, 161 government amelioration of market failures 151–2 history 99 incentives 100, 106, 144, 152–3 investment performance 125–31, 141–3, 153 investment strategies 115–18, 147–50 lapses 107–8, 109, 145–7 withdrawal 100 present value (PV) of future contributions 112, 148 present value (PV) of future pension liabilities 63–4, 67, 110 present value (PV) of future salaries 63, 64 price caps 162
Index

price indexation 151
price stability 298, 299, 305
pricing, and guarantees 246–50, 256
pricing kernel 28, 30
principle-agent problem see agency factors, in institutional theory; agency factors in pension delivery
principle-based regulation 312–13
private pensions 20–21, 238–41, 312
Probability and Impact Rating System (PAIRS) 189, 190, 196, 202, 203
productivity see labour productivity; productivity growth
productivity growth 113, 122, 147–8
professional governance 317
projected benefit obligation (PBO) see PBO (projected benefit obligation)
‘prudent person’ principle 312
PUPs (paid-up plans) 104–5, 106
put option
and risk in defined benefit (DB) pension plans 110–111, 114
and risk in defined contribution (DC) pension plans 116, 117, 123, 124, 150
PV (present value) of future contributions 112, 148
PV (present value) of future pension liabilities 63–4, 67, 110
PV (present value) of future salaries 63, 64
quasi-mandatory contributions 170, 171, 244, 311–12
RAST 167
RATE 167
real GDP growth 295
real interest rates 60, 67, 296–7, 298, 302
recovery horizon 272
recovery premiums 266–70
reduction in contributions 103–4, 105, 108–9, 143
reduction in yield
and aging society 297, 302, 303
in defined contribution (DC) pension plan design 101–3, 104, 105, 108–9, 140, 143
regulation 102, 160–161
see also principle-based regulation; risk-based supervision
reinvestment risk 132–3
rent-seeking 219
retail costs 13, 17
retail price index 151
retirees
and civil servant pensions in Hesse, Germany 55, 56, 59–60, 61, 62, 76
and stand-alone collective pension plans 272, 273, 277, 291, 292
retirement age
and civil servant pensions in Hesse, Germany 59–60, 61
increasing, and human capital investment 278, 318
and labour productivity 83, 98
see also early retirement
risk
defined benefit (DB) pensions 110–114, 118–19, 120, 262–3
defined contribution (DC) pension plans 109–14, 115, 116–17, 125
diversification 263
and investment strategy in defined contribution (DC) pension plan design 109–14
to shareholder in complex contingent defined benefit (DB) pensions 14–15
see also asset-liability mismatch risk; bankruptcy risk; convex risk penalty model; credit risk; CROs (chief risk officers); CVaR (Conditional Value at Risk); default risk; demographic risk; enterprise risk management (ERM) and defined benefit pensions; FIRM (Financial Institutions Risk Analysis Method); idiosyncratic risk; individual risk; inflation risk; intergenerational risk; Iso-CVaR (Conditional Value at Risk) curve; longevity risk; political risk; reinvestment risk; surplus risk; systematic risk; terminal fund risk; VaR (Value at Risk)
risk-adjusted expected value maximization 114–19
risk aversion
  and convex risk penalty model 30–31
  and defined benefit (DB) pension plan design 118, 119
  and defined contribution (DC) pension plan design 114–15, 116, 118
risk awareness 244
risk-based solvency rules
  and defined benefit (DB) pension plans 290
  and obligations 273–4
  and risk-based supervision 170, 174, 176, 210–211
  Australia 177, 178–9, 180, 186, 188
  Denmark 177, 178, 180, 185–6, 187–8, 199, 201, 208
  Mexico 177, 179, 180, 186, 188–9
  Netherlands 177, 178, 184, 185, 187, 197–8, 273–4, 310
risk-based supervision
  conceptual origins 167–70
  EU 312–13
  Europe 167–9, 175, 176–7, 184, 314–15
  see also risk-based supervision in Australia, Denmark, Mexico and the Netherlands
risk-based supervision in Australia, Denmark, Mexico and the Netherlands
  concluding observations 206, 208–12
  discussion 215–17
  elements 175–96
    common objectives and design elements 175–7
    internal structure of supervisory agency 178–9, 180, 194–6
    market-based discipline and third parties 178–9, 180, 193–4, 195, 216–17
    overview of main components 177–80
  regulatory requirements for risk management architecture 177, 178–9, 180–184
saving, life-cycle hypothesis 296, 299–300
‘savings gluts’ 298
scarce supervisory resources 173, 174–5
Scharfstein, D.S. 30
Scheibelhut, T. 221
Scholes, Myron 218
see also Black-Scholes framework
securities; deferred income 151
Securities and Investments Commission (Australia) 194
security selection 130
selection bias see adverse selection bias
service industries 94
shareholder value 10–11, 14–16, 17–18, 26, 40, 44
Sharpe, W.F. 25–6, 41
shortfall risk see surplus risk
shorting the market, and corporate finance approach to risk management 31, 40–44, 49
skills, and labour productivity 87
Slade, P. 104–5, 106
Slager, A. 255
Smith, C.W. 27, 30–31
Smith, E. Caerlewy - see Caerlewy-Smith, E.
SOARS 189, 191, 196, 202, 203
sociology, and labour productivity in an aging society 87
soft obligations 273–4
solvency 168–9, 176–7
see also bankruptcy risk; Basel I; Basel II; capital adequacy; insolvency; minimum solvency requirements; risk-based solvency rules; solvency buffers; Solvency II
solvency buffers 184, 185–6, 187–8, 197, 210
Solvency II 168–9, 175, 176–7, 314–15
specialist risk units 169, 170
sponsors, role of 216–17
spouses 59
SPPs (Stakeholder Pension Plans) 102–3, 104, 143
stand-alone collective pension plans back-loaded benefits, reducing 274–6, 318
described 264–5, 291
and financial planning flexibility 280–83
and human capital 266, 267, 268–9, 270, 274, 277, 278, 279–80, 316
and labour market flexibility 278–80
survivor bonds 151–2
swap contracts 252, 253, 256
systematic risk 27, 28, 44, 45

T-bills
and defined benefit (DB) pension plans 118–19, 120, 121
and defined contribution (DC) pension plans 115, 116, 118, 122, 123, 147, 148
tax benefits 277–8
taxes
and convex risk penalty model 30
and corporate finance approach to risk and defined benefit pensions 27–8, 41, 44, 45, 49
and poverty alleviation 260–261
see also implicit taxes; tax benefits
taylor-made policies 281–2, 302–3
Tepper, I. 26, 27, 41, 44, 45, 49
terminal fund risk 116, 117, 118
Tesluk, Paul E. 87
TFR 239
Thaler, R. 145
time, and capital adequacy and matching restrictions’ trade-off 247–51
Timmermann, A. 125–31, 142
Towers Perrin 106
traffic light stress test 177, 178, 185–6, 187–8, 190–191, 193, 200
training, and labour productivity 87
transfer fees 162–3
transfers 104–5, 106, 162–3, 226–7
transparency
of charges in defined contribution (DC) pension plans 104–7, 144, 145, 153, 162
and guarantees 244, 246, 253
importance 309
and risk-based supervision 169, 216
and Solvency II 169
Turner Commission on pension reform (UK) 233

UK
defined contribution (DC) pension plans 243–4
guarantees 44, 49, 252

National Pensions Savings Scheme 143, 145
pension fund governance 221
Personal Accounts 312
PPPs (Personal Pension Plans) (see PPPs (Personal Pension Plans))
reduction in yield 301
risk aversion 115
risk-based supervision 167
SPPs (Stakeholder Pension Plans) 102–3, 104, 143
Turner Commission on pension reform 233
UK equities 128, 129, 141, 142
uncertainty 112–13, 122, 147–8, 304
see also risk
underfunding 173, 269, 272
unit-linked funds 125–6, 127
unit-linked plans 115
unit-linked programme 150
Unseen Revolution, The (Drucker) 220
US
agency factor in pension delivery 223–7
aging society 297
labour productivity and utilization growth 296
PBGC (Pension Benefit Guaranty Corporation) 41, 44, 49, 243, 251–2
pension fund governance 221
pension system 243–4, 251, 252
risk-based supervision 167
‘save more tomorrow’ pension plans 145
Utkus, Stephen 147

value maximizers 24, 25, 28
Van Dalen, H. 255
VaR (Value at Risk) 171, 172, 174, 186, 188–9, 191, 192, 196, 204–6, 207, 208
voluntary contributions 134–5, 136, 137, 138

wealth 219, 271, 280
wealth-to-income ratio 298, 299–300
Weiss, M. 94
welfare 268, 280, 298
Whittaker, E.T. 57
Wise, David A. 88
withdrawal penalties 68, 70, 75, 100
withdrawals
    and civil servant pension reform in
    Hesse, Germany 69, 70, 71, 73, 74, 75, 76, 77
PPPs (Personal Pension Plans) 100
work teams, labour productivity 86, 88–94
working conditions, and labour
    productivity 87
working population, growth rate
    decline 294, 297
yield, reduction in see reduction in
    yield
younger workers
    and back-loaded benefits 274, 275
    experience 91, 92
    and labour market flexibility 279
    labour productivity 87
    and liability-driven investment
        (LLD) 270
    and stand-alone collective pension
        plans 266–7, 271, 272, 273–4, 275–6, 291
in work teams 90, 91, 92, 93