Absolute prepayment speed (ABS), 45
Action buttons, 6
Actual/actual day-count system, 11–12
Actual/360 day-count system, 11–12, 14, 17
Actual/365 day-count system, 11, 14, 17
Advanced liability structures reserve accounts, 117–122
swaps, 113–117
triggers, 107–113
Advance rate, 147, 150
Agency bonds, 11
Amort Factor, 53
Amortization asset cash flow, 23–27
asset principal check, 129
cash flow, 90
cash flow waterfall and, 90, 102–103, 105
dates and timing, 6, 14
fixed rate inputs, 28
floating rate, 28–29
interest rate swaps, 115
level payment, 89
loss curves, 74–82, 147
monthly yields, 131
prepayment rates, 151
principal allocation and, 150
principal return and, 108
projected prepayments in, 53–55
significance of, 6–7, 14
timing, 136
trigger analysis, 110–111
Analytics, see Performance analytics
Analytic sheet, looping to, 164
AND function, 110, 123
Annual interest rate, 97
Array formulas, 142–143
Asset(s) assumptions, generally, 2
cash flow generation, see Asset cash flow generation
classes, 1–2, 44
inputs, 4
interactions, 104–105
interest rate curve selection, 54
pool, 54
principal check test, 129
Asset Based Fee, calculation of, 93
Asset cash flow generation
cash flow sheet, 33
defined, 23
input sheets, 27–33
loan level vs. representative line amortization, 23–27
notional asset amortization on cash flow sheet, 33–39
Asset-specific data, 6
Auctions, recovery process, 84
Auditor, functions of, 2–3
Automation, using VBA, see Visual Basic Applications (VBA)
Automobile Lease Guide (ALG), 88
Automobile loans/leases, 1, 84
Back-loaded loss curves, 69, 152
Balance calculations, loss curves and, 74
Balances at maturity tests, 128–129
Balance sheet type model, 14
Bank fees, 91
Bank funding, interest rates, 94–95
Base assumptions, determination of, 6
Beginning of period (BOP), 33
Bond-equivalent yield (BEY), 133
Bond market, 95
Boolean variables, 111, 158
Buy and hold transactions, 24
Caps, 36–37, 95
Carry cost, 84
Cash flow analysis, 2
Cash flow analysis, 2
delinquency and, 61
generation of, see Asset cash flow generation; Cash flow generation model, see Cash flow model projected recoveries, 86–88
structure, 3–5
waterfall, see Cash flow waterfall
Cash flow generation influential factors, 4
loss projections and, 73–74
Cash flow model advanced, 6
assumptions, validation of, 6
basic elements of, 3–5
building process, 5–7
overview of, 1–2
test model, 7
Cash Flow sheet
  cash flow waterfall, 90, 94, 96–99
  characteristics of, 6
dates and timing, 14–18
  interest rate swap, 115–117
internal tests, 126, 128
loss curves, 148–149
notional asset amortization on, 33–39
prepayments, 54–55
projected recoveries, 87–88
trigger analysis, 110–111
Cash flow waterfall
  asset structure, 105–106
  checking calculations, 122–123
  color system, 123
  conceptual construction method, 99
  fee calculation, 91–95
  interest calculation, 95–100
  liabilities, 91, 145
  liability structure, 105–106
  output reports, 138
  payment priority, 89–91
  performance analytics, 130–133
  period progression, 90
  principal calculation, 100–105
  reserve accounts and, 118, 121–123
  trigger analysis, 109–110, 112
Cash Flow snapshot, in output report, 135, 138, 140
Cash generation, sources of, 2.
  See also Asset cash flow generation; Cash flow
Cash in vs. cash out test, 126–128
CBO/CLO/CDO, 1
CD-ROM guidelines
  asset cash flow generation, 26
cash flow waterfall, 94, 99, 105
dates and timing, 12
historical delinquency curves, 62
  interest rate swaps, 115
  losses, 147
  output report creation, 136–137
  prepayments, 54
  recovery process, 84
Cells, naming, 12–13, 18
Charts, in output report, 135, 140
Closing date
dates and timing, 14–15, 19
deferred, 10
Commercial mortgages, 1
Comparables studies, 73
Complete prepayment, 43
Conditional formatting, 127–129, 140–141
Conditional prepayment rate (CPR), 44, 52
Core determinant, 82
Corporate bonds, 11
COUNT formula, 50
Credit
collections, 82
  enhancement, 95, 103, 106, 136, 148
  memos, 6
  rating, significance of, 151
  rating agencies, 2
  -related events, 43
  score, 61
trends, 60–61
Credit card receivables, 1
Cumulative default rate, 108
Cumulative loss curves, 66–69
Cumulative loss percentage, 136
Cumulative Prepayment Rate (CDR), 44
Curves, see Prepayment curves
Data
  accuracy, 6
  aggregation, recovery process, 85–86
  manipulation, 1, 86
  validation, 19–21, 81, 109
Databases, as information resource, 6
Dates and timing
  on cash flow sheet, 14–18
day-count systems, 11–12
  EDATE, 14, 16, 21
  importance of, 6, 9
  inputs sheet, 10, 12–14
time progression, 9–10
Dates method, historical loss curves, 67
Day count systems, 11–12, 115
DAYS360 function, 11
Deal structure, 6
Debt rate, 95. See also specific types of debt
Debt tranches, monthly yield calculation, 133
Default
cash flow waterfall and, 105
classification of, 83–84
defined, 60
  influential factors, 6–7, 100
  mortgage, 23–24, 26
  new, 102
  prepayments, 55
  rate, loss curves, 80
timing, loss curves, 75–76
  trigger analysis, 110, 150
Definitive pools, 23–24
Delinquency
  analysis, importance of, 60–61
  vs. defaults vs. loss, 59–60
defined, 59
  historical curves, 61–64
  severity of, 61
  trigger analysis, 108, 110
Design phase, see Planning and design phase
Divide-and-conquer algorithm, 132
DIV/0 errors, 49, 55, 62
Documentation, 6
Duration, modified, 133–134
Dynamic portfolios, 65–66
Index

EDATE, 14, 16, 21
Eligibility criteria, 26–27
Emerging market remittances, 1
Ending balance, loss curves, 82
Ending date, 11
End of period (EOP), 33
Equipment leases, 1
Equity payments, 4, 95
Errors
array formulas, 143
#DIV/0, 49, 55, 62
internal tests, 127, 129
output reports, 135, 143
recoveries, 152
European day-count system, 11
European systems, 11
Excess spread
  cash flow waterfall, 102–103, 106
  loss analysis, 61, 69
  negative, 108
  prepayments and, 48
  significance of, 146
  trigger analysis, 109
Expected loss, 72–73
Fabozzi, Frank J., 60
FALSE statement, 110, 138
Fees
  as liabilities, 89, 91
  loss curves and, 148
  reserve accounts, 118
  types of, 4
Financial guaranties, 146–147, 149
First payment date
  dates and timing, 16
  defined, 10
Fitch, as information resource, 2
Fixed-for-floating interest rate swap, 114
Fixed interest rate, 95–96
Fixed rate mortgage, 47
Floating rate
  assets, 27–28
  functions, 36
  liabilities and, 113–114
  mortgage, 47
  system, 39, 95, 153
Foreclosure, 43, 60
Formatting, conditional, see Conditional formatting
Front-loaded loss, 69, 76, 152
Future cash flow, projection of, 23
Global inputs, 4
Global trigger, 112
Goal Seek tool, 132–133, 141–142, 149–150, 158, 161–164
Gregorian calendar, 11
Gross cumulative defaults, 108, 110
Gross cumulative loss, 136
Gross loss, 64, 83–84
Growth adjustment, 66
Guaranteed investment contracts (GICs), 149
Guaranties, see Financial guaranties
Hedging instruments, 95
Hidden Sheet
  cash flow sheet, dates and timing, 16
  input sheets, see Input sheets
  trigger analysis, 109
High-growth portfolio, 66
Historical data, 6, 44, 46, 64
Historical default rate, 108
Historical delinquency curves, 62–64
Historical loss curves
  analysis, 59, 69–70, 74
  comparison of origination pools, 64–65
  derivation of, 64–67
  Model Builder, 67–73
  severity of loss, 69, 72, 74, 77–78
  static analysis, 64, 73
  time progression, 67
  vintage, 69–73
  recovery analysis, 85–86
Horizontal progression of time, 9, 14
IF-AND combination, cash flow waterfall, 104
IF statement
  array formulas, 142
  asset cash flow generation, 39
  cash flow waterfall, 102, 104–105
  dates and timing, 16–17
  loss curves, 72–73, 81
  prepayments, 49, 55
  trigger analysis, 112
Indentures, 6
Inflow of cash, 23
Information gathering, cash flow model construction, 6
Infrastructure, 2
Input Sheets
  asset assumptions, 31
  cash flow model, 3–4
  cash flow waterfall, 91–92, 96–97, 101
  dates and timing, 10, 12–14
  internal tests, 129–130
  prepayments, 54
Inputs
  determination of, 6
  trigger analysis, 109–111
  significance of, 7
Institutional investors, 48
Interest, see Interest rate calculation, 23
  cost, 84
  as liability, 89
  monthly yields and, 131
Interest rate
  asset cash flow generation, 38–39
  cash flow waterfall, 94–100
  delinquency and, 61
  floating, 34
  influential factors, 151
  reserve accounts and, 122
  swap, see Interest rate swap vectors, 4, 29
Interest rate swap
characteristics of, 113–114, 153
incorporating, 114–117
Internal testing
asset principal tests, 129
balances at maturity tests, 128–129
cash in vs. cash out test, 126–128
importance of, 140, 153
Investment banks, 95, 175
Investment decision, influential factors, 135

Legal proceedings, types of, 83
Legal structure, 3
Liabilities
amortization, 7
assumptions, 2
cost, 48
individual, 90–91
inputs, 4
interactions, 104–105
payment priority, 89–91, 107
principal and interest, 6
rates, 149
recovery process, 87
structures, 4. See also Advanced liability structures
types of, 89, 91, 145
LIBOR (London Interbank Offered Rate), 29, 31, 34, 36, 94–95, 114–115
Lifetime cap/floor, 28, 32
Liquidation
historical loss curves, 65–66
recovery process, 84, 86
Liquidity
delinquency and, 60, 63–64
level asset generation, 24, 26
Loss
defined, 60
historical, 6
influential factors, 146
severity, 71–72, 83
timing, 136
Loss % Taken, 72
Loss curves, see Historical loss curves
characteristics of, 4
historical, 64–68
integrated historical and projected, 73–82
prepayment rates, 151
projecting, 67–68, 70–71
timing, 69–70
timing sheet, loss curves, 76–82
Loss to be Dist., 72
Margin, 94, 97, 148
Market value decline (MVD), 88
MATCH function, 35, 38, 40–41
Maturity
final, 9
historical loss curves, 70–71
internal tests, 128–129
liability interactions and, 106
loss curves, 75–76
MAX formula
asset cash flow generation, 37
prepayments, 55
reserve accounts, 121
Methodology, accuracy of, 6
Microsoft Excel
functions, see specific functions
macros, 173
row constraints, 5, 9–10
MIN formula
asset cash flow generation, 37
cash flow waterfall, 93, 103
interest rate swap, 116
loss curves, 81
output reports, 136
prepayments, 55
trigger analysis, 112–113
Minimum reserve, 118, 121
Model Builders. See also CD-ROM guidelines
asset cash flow generation, 27, 29–39
automating Goal Seek, 161–167
cash flow waterfall, 91–105
dates and timing, 12–18
delinquency analysis, 61–64
historical loss curves, 67–68
internal tests, 126–130
output report, 136–140
performance analytics, 134
prepayment, R8-T6, 151
print procedures, 158–161
projected prepayment, integration into asset amortization, 53–55
transaction scenario generator creation, 167–173
trigger incorporation, 108–113
MOD function, 41
asset cash flow generation, 37, 41
OFFSET function, 10, 35–36, 39–40
PMT function, 41
Monte Carlo simulation, 2
Monthly default rate (MDR), 74
Monthly yield, 130–133
Moody’s, as information resource, 2
Mortgage loans
defaults, 23–24, 26
default timeline, 60–61
interest rates and, 47
obligor, responsibilities of, 43
payoff, 24, 26
types of, 1
Mortgage-backed securities, 4–5, 11
Moving cash, 4
Municipal bonds, 11
National Association of Securities Dealers (NASD), 11
Natural resources, 2
Net loss, 83
Recovery rate, 6, 83, 86–87, 152–153
Refinancing, 24, 26, 43
Reimbursement, reserve accounts, 4, 118, 120–121
Reporting results
array formulas, 142–143
conditional formatting, 127–129, 140–141
internal testing, 125–129
output reporting, 135–140
performance analytics, 130–133
Repossession, 83–84
Representative line analysis, 24
Reserve accounts, 6, 69, 117–122, 146
Residential mortgages, 1
Residual value, 88
Risk management, 95
Risk mitigation, 95, 100
Rolling average triggers, 108
ROUND function, internal tests, 129
Scenario Assumption, in output report, 135
Seasoned assets, prepayments, 55
Seasoning
asset cash flow generation, 31
output reports, 136
loss curves, 75–76
Senior debt, 91–93, 96, 98–102, 109, 112, 121, 128, 147, 149–150
Senior interest and principal, 4
Senior investors, advanced liability structures, 107
Senior principal, cash flow waterfall, 104
Senior subordinated structure, 92
Senior tranches, 104, 136
Sequential principal payment, 100–101, 104–105, 150
Serial numbers, 11
Servicer fees, 89, 91, 148
Severity, loss curves, 64, 69, 72, 74, 76
Simulations, 6
Slope analysis, 73
Small business loans, 1
Standard & Poor’s as information resource, 2
on static loss data, 65–66
Standard default assumption (SDA)
loss curves, 74, 76, 79–81
trigger analysis, 110
Start date, 11
Static loss analysis, 64, 67, 71, 73
report, 59
Static pool data, 65–66
Stressor, for prepayments, 54
Stress scenarios, 106, 151
Structured finance model financial guarantors
perspective, 177
investment bank perspective, 175
investor perspective, 176
issuer perspective, 176
loss, effects of, 146–150
loss timing, 152
overview of, 145–147, 177
principal allocation methodologies and, 150–151
recoveries, 152
swaps, 153
testing, 153
top-down approach, 145
transaction cash, 145–146
Subordinate debt, 95, 100, 104–105, 128, 147, 150
Subordinated interest and principal, 4, 104
Subordinated tranche, trigger analysis, 111
SUM function
historical loss curves, 71
prepayments, 50, 56–57
recovery process, 85
SUMIF function, recovery process, 85
Summary sheet, 51–52
SUMPRODUCT function
historical loss curves, 73
prepayments, 51, 56–57
SUMPRODUCT-SUM function
historical delinquency curves, 62
output reports, 138
prepayments, 49–50, 56–57
Surety, 2
Swaps, see Interest rate swaps
characteristics of, 95, 113–117, 153
expenses, 117
rate, 94
“Take the lesser of what is available and what is needed” rule, 98
Taxation, 4
Templates, 6
Term sheets, 6, 89
Testing
cash flow model, 7
importance of, 6
internal, see Internal tests
30/360-day-count system, 11, 17
Timeshares, 1
Timing, see Dates and timing Curve, 152
historical loss curves, 69–70
loss curves, 76–82
scenarios, 152
significance of, 6
time progression, 9–10
Toolbox
dates and timing, 18–21
MATCH function, 40–41
MOD function, 41
OFFSET function, 39–40
PMT function, 41
weighted average using SUMPRODUCT and SUM, 5–57
Total returns, 48
Tranches, 89, 100. See also specific types of tranches
Transaction fees, 4, 6
Trending, historical loss curves, 70–71
Trigger(s)
defined, 4
breach of, 108, 110, 150
historical loss curves, 69
liability structures, 107–113
tracking, output reports, 138
types of, 6, 150–151
TRUE value, 110, 138
Trust(s)
documents, 6
fees, 89, 91
Underwriting, 65
U.S. Treasury bills, 11
Unpaid interest, 99
User-generated curve, loss curves, 81
Vectors sheet
asset cash flow generation, 29–34, 37
cash flow waterfall, 96–97
interest rate swap, 115–116
loss curves, 78–79
prepayments, 54
Vertical progression of time, 9, 14
Vintage analysis, 46, 49
Vintage loss curves, 69–73
Visual Basic Applications (VBA)
characteristics of, generally, 27, 133
Code, 155, 157–158
Editor (VBE), 156–157
Goal Seek tool, 158, 161–164
looping to Analytic sheet, 164
print, 158–161
scenario generation, 167
transaction analytics, 164–167
transaction scenario generation, 167–173
Visual Basic Editor (VBE), 156–157
VLOOKUP, 35
Volatility, impact of, 73, 117
WA SMM curve, 50–52
Waterfall, defined, 89. See also
Cash flow waterfall
Weighted average
coupon deterioration (WAC deterioration), 151
curve, see Weighted average curve
fixed rate, 113
formula, historical delinquency curves, 62–63
life (WAL), 107, 137–138, 152
rate, 24
terms, 24
Weighted average curve
historical loss curves, 69–73
prepayments, 46–47, 50–51
“What You Have and What You Need,” 90–91, 93–94, 103, 119, 121
Withdrawals, reserve accounts, 119–120
Worst-case scenarios, 109
YEAR function, recovery process, 85
Zero-balance periods, 62