Contents

List of illustrations xi
List of tables xiii
About the Authors xv
Preface xvii

1 Introduction 1

1.1 The development of project finance 1
1.2 Financial assessment 6
   What is financial assessment? 6
   Why perform a financial assessment? 6
   Who is involved in the risk assessment process? 7
   Where should a financial assessment be performed? 7
   When should a financial assessment be performed? 8
   What data are to be used? 8
   How should assessment outputs be presented? 8

1.3 Purpose of this guide 9
1.4 Scope of the guide 9

2 Project finance 11

2.1 Introduction 11
2.2 Definition of project finance 11
2.3 The key characteristics of project finance 13
   Special project/purpose vehicle 14
   Contractual arrangement 14
   Non-/limited recourse 17
   Off-balance sheet transaction 18
   Robust income stream of the project as the basis for financing 19

2.4 Legal and financial considerations in project finance 20
   Legal 20
   Financial 22
3 Financial instruments and cash flow modelling 25
   3.1 Introduction 25
   3.2 Debt finance 25
       Senior debt 27
   3.3 Mezzanine finance 28
       Subordinate debt 28
       Bond finance 29
   3.4 Equity finance 31
   3.5 Sources of debt and equity 34
   3.6 Cash flow modelling and project financing 34

4 Risk management 39
   4.1 Introduction 39
   4.2 Risk 39
   4.3 Risk management process 41
       Risk identification 42
       Risk analysis 44
       Risk response 47
   4.4 Typical risks in project financing 49

5 The financial assessment process 51
   5.1 Introduction 51
   5.2 The financial assessment structure 51
       SPV assessment 51
       Lenders’ assessment 54
       SPV and lender final assessment 55

6 Case study 57
   6.1 Introduction 57
   6.2 Independent power project 57
   6.3 Supply and offtake contracts 58
       Supply contracts 60
       Offtake contracts 61
       Applications of supply and offtake contracts 64
   6.4 Assumptions for initial assessment 65

7 Developing the base case model 69
   7.1 Introduction 69
   7.2 SPV’s initial assessment 69
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.3 Identify the estimated activities, time, costs and revenues of the project</td>
<td>70</td>
</tr>
<tr>
<td>7.4 Development of the base case model</td>
<td>71</td>
</tr>
<tr>
<td>7.5 Identify major project risks</td>
<td>73</td>
</tr>
<tr>
<td>7.6 Assessment of base case model incorporating risks</td>
<td>74</td>
</tr>
<tr>
<td><strong>8 Initial economic assessment by lenders</strong></td>
<td>77</td>
</tr>
<tr>
<td>8.1 Introduction</td>
<td>77</td>
</tr>
<tr>
<td>8.2 Financial package assessment</td>
<td>77</td>
</tr>
<tr>
<td>- Finance package (1)</td>
<td>78</td>
</tr>
<tr>
<td>- Finance package (2)</td>
<td>82</td>
</tr>
<tr>
<td>- Finance package (3)</td>
<td>83</td>
</tr>
<tr>
<td>8.3 Conclusions</td>
<td>87</td>
</tr>
<tr>
<td><strong>9 Financial engineering</strong></td>
<td>89</td>
</tr>
<tr>
<td>9.1 Introduction</td>
<td>89</td>
</tr>
<tr>
<td>9.2 Financial instruments used in financial engineering</td>
<td>90</td>
</tr>
<tr>
<td>- Forward rates</td>
<td>90</td>
</tr>
<tr>
<td>- Financial futures</td>
<td>90</td>
</tr>
<tr>
<td>- Swaps</td>
<td>91</td>
</tr>
<tr>
<td>- Options</td>
<td>92</td>
</tr>
<tr>
<td>- Caps, floors, collars, swaptions and compound options</td>
<td>92</td>
</tr>
<tr>
<td>- Asset-backed securities</td>
<td>93</td>
</tr>
<tr>
<td>9.3 Refinancing</td>
<td>94</td>
</tr>
<tr>
<td>9.4 Reappraising public–private partnerships</td>
<td>94</td>
</tr>
<tr>
<td>9.5 Techniques applied in the reappraisal of PPP concession agreement</td>
<td>95</td>
</tr>
<tr>
<td>9.6 Other financial engineering techniques</td>
<td>96</td>
</tr>
<tr>
<td><strong>10 Final assessment to determine project commercial viability</strong></td>
<td>101</td>
</tr>
<tr>
<td>10.1 Introduction</td>
<td>101</td>
</tr>
<tr>
<td>10.2 Detailed risk assessment</td>
<td>101</td>
</tr>
<tr>
<td>10.3 Financial engineering</td>
<td>105</td>
</tr>
<tr>
<td>- Tax holiday</td>
<td>105</td>
</tr>
<tr>
<td>- Financial collar</td>
<td>107</td>
</tr>
<tr>
<td>- Extending the concession</td>
<td>107</td>
</tr>
<tr>
<td>- Increasing debt</td>
<td>107</td>
</tr>
</tbody>
</table>
Contents

Grace period 108
Phasing construction and operation 108
Upfront payments 108
Existing concession revenues 108

10.4 Summary 109

11 Financial close 111
11.1 Introduction 111
11.2 Due diligence 111
   Technical 113
   Legal due diligence 114
   Trigger step in rights 116
   Model audit and sensitivity analysis 116
   Risk valuation 117
   Term sheet 117
   Inter-creditor agreement 117
   Hedge strategy 118
   Letters of credit 118
   Reserve account 119
   Escrow and ring-fenced facilities 119
   Economic indicators 120
   Taxation 120
   Insurance 121
11.3 Financial close 122
   Credit committee approval process 123
   Due diligence report 124
   Technical closure 124
   Financial close 124
   Technical commencement 124
   Execute interest rate swaps 125

12 Islamic finance and project finance 127
12.1 Introduction 127
12.2 Islamic finance 127
12.3 Shariah 129
   Qiyas and Litihad 129
12.4 Core principles of Islamic finance 130
   Sharing (profit/loss and risk) 130
Contents

No unfair gain 130
No speculation 130
No uncertainty 130
No investments that are not in the public interest 131
No hoarding of money 131
Deception 131
Islamic financial institutions 131
Shariah supervisory boards 132

12.5 Project finance 132
The Ijara principle 133
Ijara Mawsufah Fi Al Dhimmah (forward lease) 133
Istisna’a 133
Sukuk 134
Sukuk al Istisna’a 135
A typical SAI deal 135
Hedging 136
Swaps 137

12.6 Other Islamic finance techniques for projects 137
Musharaka (equity financing) 137
Bai salam (forward financing) 138

12.7 Risks and liabilities 138
12.8 Summary 139

13 Conclusions and recommendations 141
13.1 Review 141
13.2 Conclusions 142
13.3 Recommendations 144

Appendix 147
Glossary 159
References 161
Index 167