XML Schema Documentation

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Schema Document Properties

Target Namespace	**http://www.fpml.org/2007/FpML-4-4**
Version	$Revision: 2350 $
Element and Attribute Namespaces	• Global element and attribute declarations belong to this schema's target namespace. • By default, local element declarations belong to this schema's target namespace. • By default, local attribute declarations have no namespace.

Schema Composition	• This schema includes components from the following schema document(s):
	  ○ fpml-riskdef-4-4.xsd
	  ○ fpml-cd-4-4.xsd

Declared Namespaces

Prefix	Namespace
Default namespace	http://www.fpml.org/2007/FpML-4-4
ecore	http://www.eclipse.org/emf/2002/Ecore
xml	http://www.w3.org/XML/1998/namespace
xsd	http://www.w3.org/2001/XMLSchema
fpml	http://www.fpml.org/2007/FpML-4-4

Schema Component Representation

```
<xsd:schema nsPrefix="fpml" package="org.fpml" documentRoot="FpML" targetNamespace="http://
www.fpml.org/2007/FpML-4-4" version="$Revision: 2350 $"
attributeFormDefault="unqualified" elementFormDefault="qualified">
   <xsd:include schemaLocation="fpml-riskdef-4-4.xsd"/>
   <xsd:include schemaLocation="fpml-cd-4-4.xsd"/>
   ...
</xsd:schema>
```

top

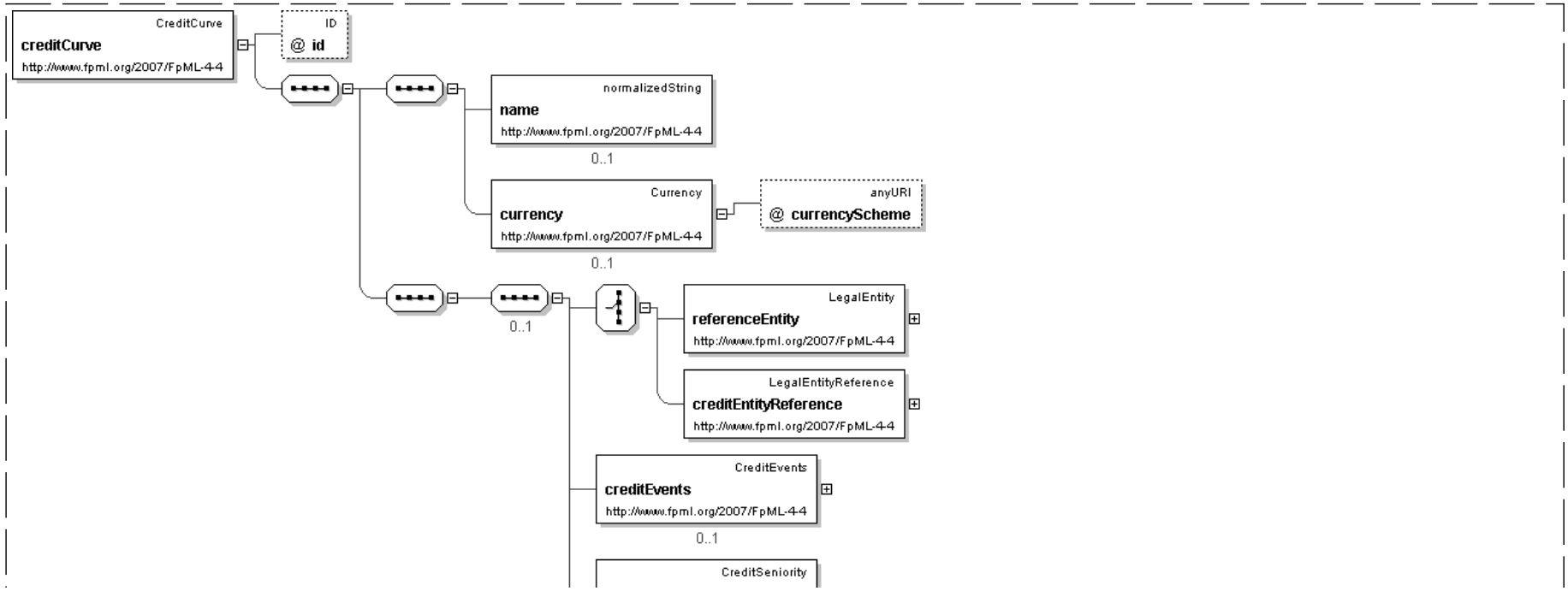
Global Declarations

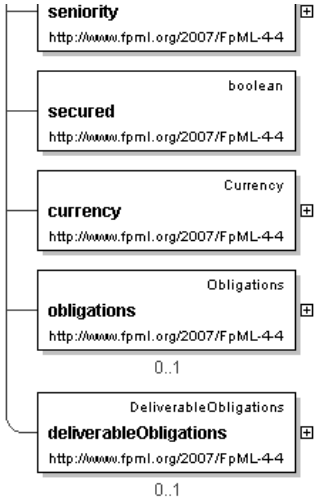
Element: creditCurve

- *This element can be used wherever the following element is referenced:*
  - pricingStructure

Name	creditCurve
Type	CreditCurve
Nillable	no
Abstract	no

Logical Diagram



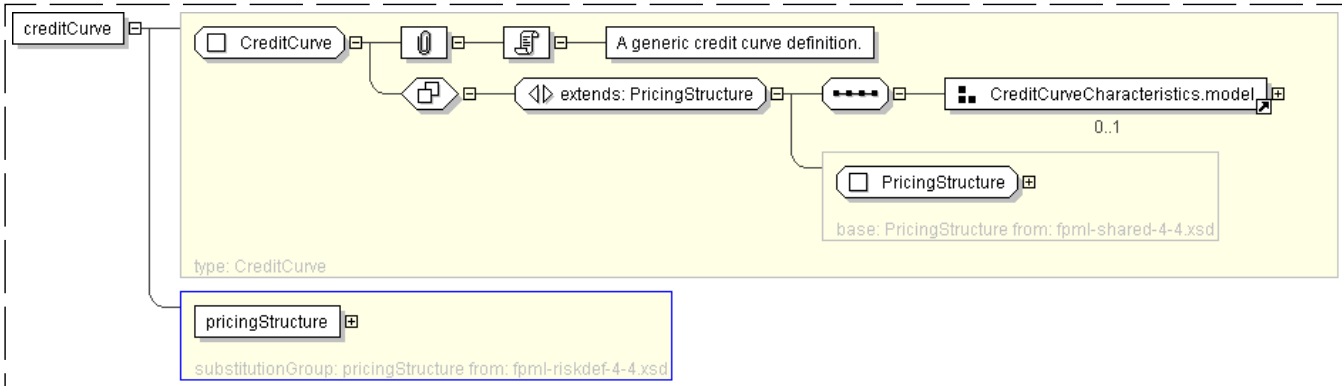


XML Instance Representation

```
<creditCurve
id=" xsd:ID [0..1]">
   <name> xsd:normalizedString </name> [0..1]
   'The name of the structure, e.g \"USDLIBOR-3M EOD Curve\".'

   <currency> Currency </currency> [0..1]
   'The currency that the structure is expressed in (this is relevant mostly for the Interes
   Rates asset class).'

Start Group: CreditCurveCharacteristics.model [0..1]
Start Choice [1]
         <referenceEntity> LegalEntity </referenceEntity> [1]
         'The entity for which this is defined.'

         <creditEntityReference> LegalEntityReference </creditEntityReference> [1]
         'An XML reference a credit entity defined elsewhere in the document.'

End Choice
      <creditEvents> CreditEvents </creditEvents> [0..1]
      'The material credit event.'

      <seniority> CreditSeniority </seniority> [1]
      'The level of seniority of the deliverable obligation.'

      <secured> xsd:boolean </secured> [1]
      'Whether the deliverable obligation is secured or unsecured.'

      <currency> Currency </currency> [1]
      'The currency of denomination of the deliverable obligation.'

      <obligations> Obligations </obligations> [0..1]
      'The underlying obligations of the reference entity on which you are buying or
      selling protection'

      <deliverableObligations> DeliverableObligations </deliverableObligations> [0..1]
      'What sort of obligation may be delivered in the event of the credit event. ISDA 2003
      Term: Obligation Category/Deliverable Obligation Category'
```

```
End Group: CreditCurveCharacteristics.model
</creditCurve>
```

Diagram



Schema Component Representation

```
<xsd:element name="creditCurve" type=" CreditCurve " substitutionGroup="pricingStructure"/>
```

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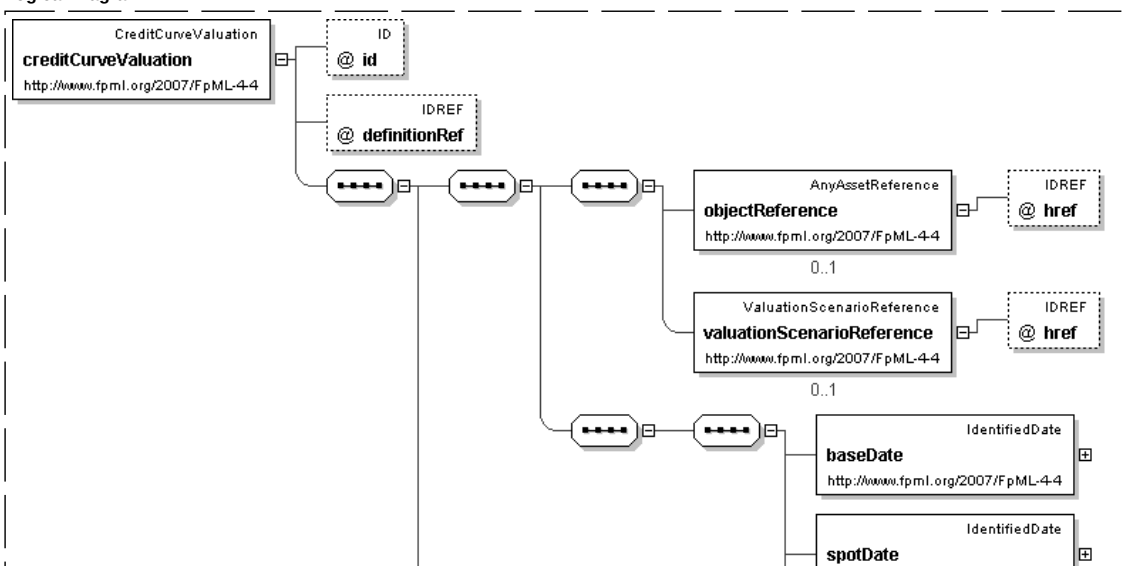
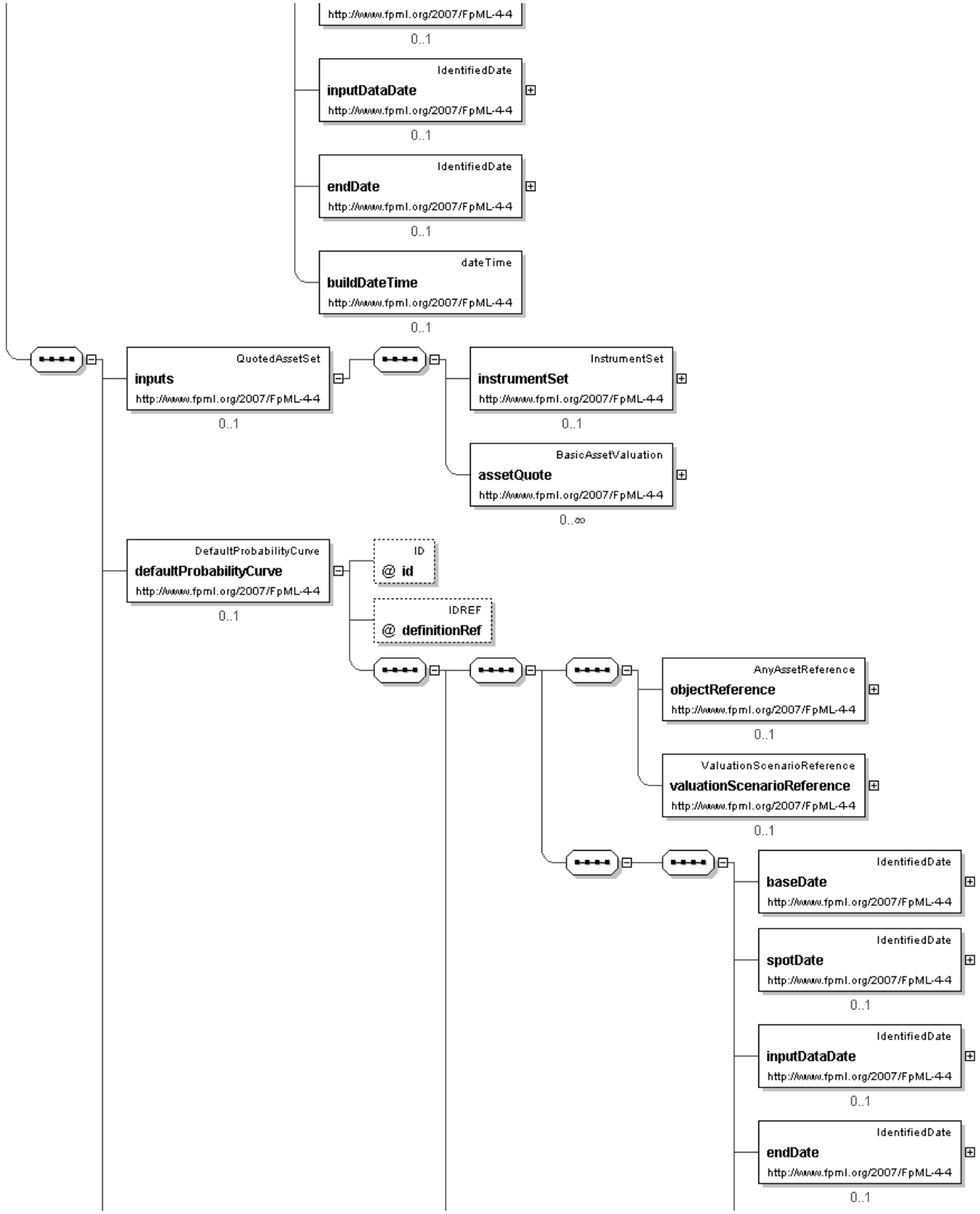
Element: creditCurveValuation

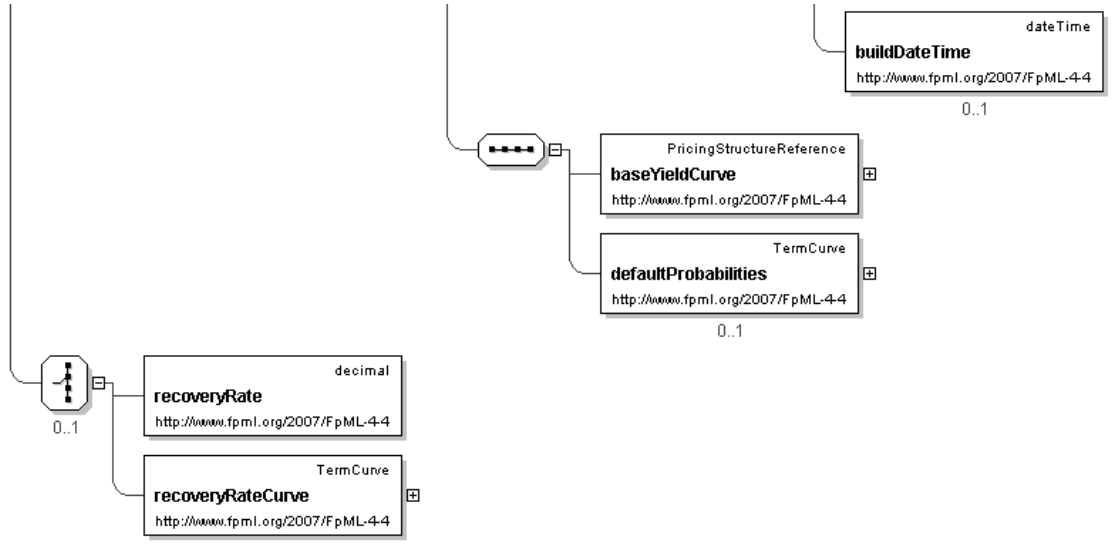
- *This element can be used wherever the following element is referenced:*
  - pricingStructureValuation

Name	creditCurveValuation
Type	CreditCurveValuation
Nillable	no
Abstract	no

Logical Diagram




http://www.fpml.org/2007/FpML-4-4
0..1
IdentifiedDate
inputDataDate
http://www.fpml.org/2007/FpML-4-4
0..1
IdentifiedDate
endDate
http://www.fpml.org/2007/FpML-4-4
0..1
dateTime
buildDateTime
http://www.fpml.org/2007/FpML-4-4
0..1
QuotedAssetSet
inputs
http://www.fpml.org/2007/FpML-4-4
0..1
InstrumentSet
instrumentSet
http://www.fpml.org/2007/FpML-4-4
0..1
BasicAssetValuation
assetQuote
http://www.fpml.org/2007/FpML-4-4
0..∞
DefaultProbabilityCurve
defaultProbabilityCurve
http://www.fpml.org/2007/FpML-4-4
0..1
ID
@ id
IDREF
@ definitionRef
AnyAssetReference
objectReference
http://www.fpml.org/2007/FpML-4-4
0..1
ValuationScenarioReference
valuationScenarioReference
http://www.fpml.org/2007/FpML-4-4
0..1
IdentifiedDate
baseDate
http://www.fpml.org/2007/FpML-4-4
IdentifiedDate
spotDate
http://www.fpml.org/2007/FpML-4-4
0..1
IdentifiedDate
inputDataDate
http://www.fpml.org/2007/FpML-4-4
0..1
IdentifiedDate
endDate
http://www.fpml.org/2007/FpML-4-4
0..1

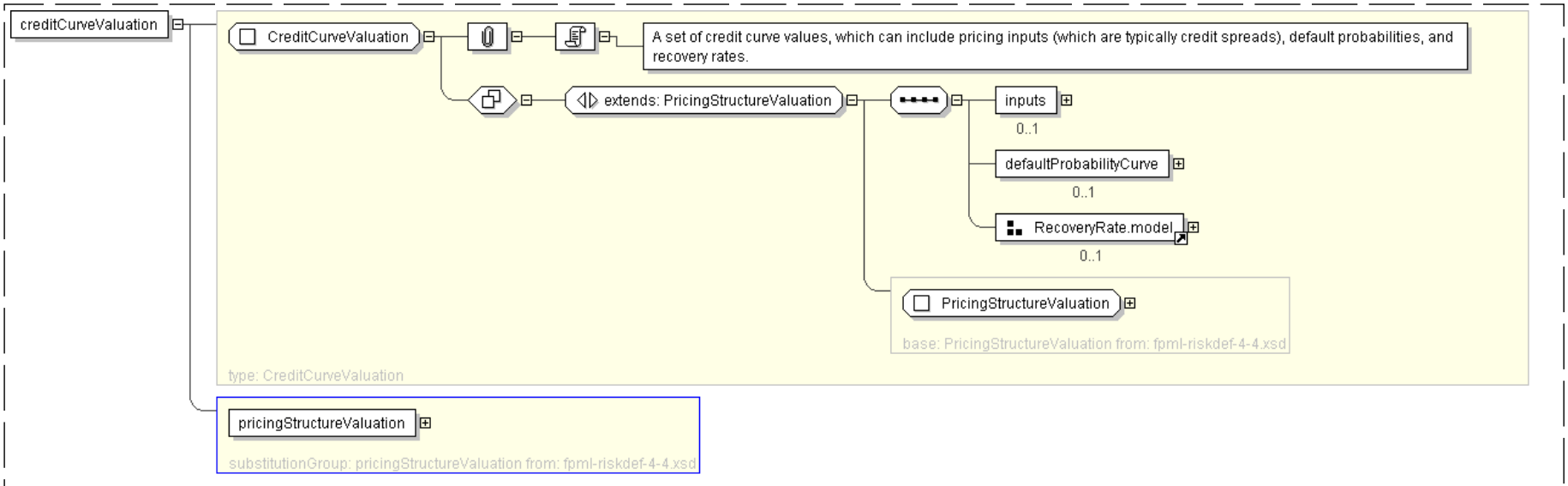


XML Instance Representation

```
<creditCurveValuation
id=" xsd:ID [0..1]"
definitionRef=" xsd:IDREF [0..1]
'An optional reference to the scenario that this valuation applies to.'

">
   <objectReference> AnyAssetReference </objectReference> [0..1]
   'A reference to the asset or pricing structure that this values.'

   <valuationScenarioReference> ValuationScenarioReference </valuationScenarioReference> [0..1]
   'A reference to the valuation scenario used to calculate this valuation. If the
   Valuation occurs within a ValuationSet, this value is optional and is defaulted from
   the ValuationSet. If this value occurs in both places, the lower level value (i.e. the
   one here) overrides that in the higher (i.e. ValuationSet).'

   <baseDate> IdentifiedDate </baseDate> [1]
   'The base date for which the structure applies, i.e. the curve date. Normally this will
   align with the valuation date.'

   <spotDate> IdentifiedDate </spotDate> [0..1]
   'The spot settlement date for which the structure applies, normally 0-2 days after the
   base date. The difference between the baseDate and the spotDate is termed the settlement
   lag, and is sometimes called \"days to spot\".'

   <inputDataDate> IdentifiedDate </inputDataDate> [0..1]
   'The date from which the input data used to construct the pricing input was obtained. Often
   the same as the baseDate, but sometimes the pricing input may be \"rolled forward\", in
   which input data from one date is used to generate a curve for a later date.'

   <endDate> IdentifiedDate </endDate> [0..1]
   'The last date for which data is supplied in this pricing input.'

   <buildDateTime> xsd:dateTime </buildDateTime> [0..1]
   'The date and time when the pricing input was generated.'

   <inputs> QuotedAssetSet </inputs> [0..1]
   <defaultProbabilityCurve> DefaultProbabilityCurve </defaultProbabilityCurve> [0..1]
```

```
    'A curve of default probabilities.'

Start Group: RecoveryRate.model [0..1]
'A recovery rate value or curve.'


Start Choice [1]
        <recoveryRate> xsd:decimal </recoveryRate> [1]
        'A single recovery rate, to be used for all terms.'

        <recoveryRateCurve> TermCurve </recoveryRateCurve> [1]
        'A curve of recovery rates, allowing different terms to have different recovery rates.'

End Choice
End Group: RecoveryRate.model
</creditCurveValuation>
```

Diagram



Schema Component Representation

```
<xsd:element name="creditCurveValuation" type=" CreditCurveValuation
" substitutionGroup="pricingStructureValuation"/>
```

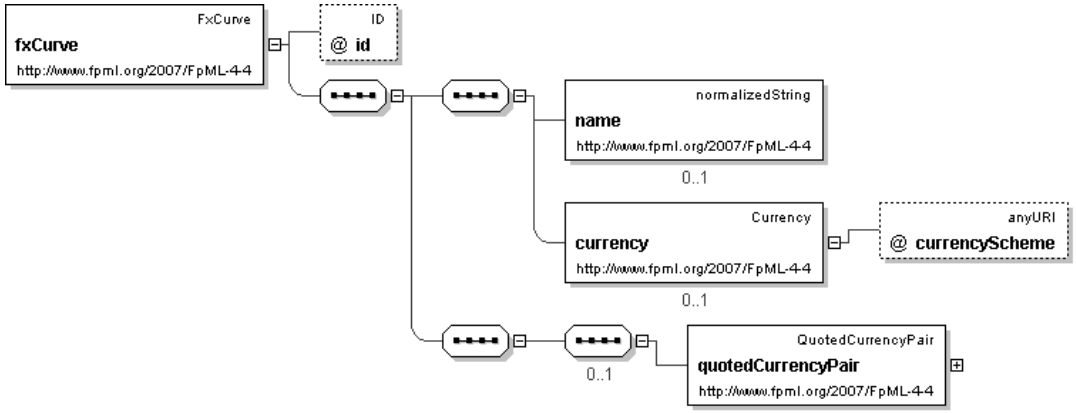
top

Element: fxCurve

- *This element can be used wherever the following element is referenced:*
  - pricingStructure

Name	fxCurve
Type	FxCurve
Nillable	no
Abstract	no

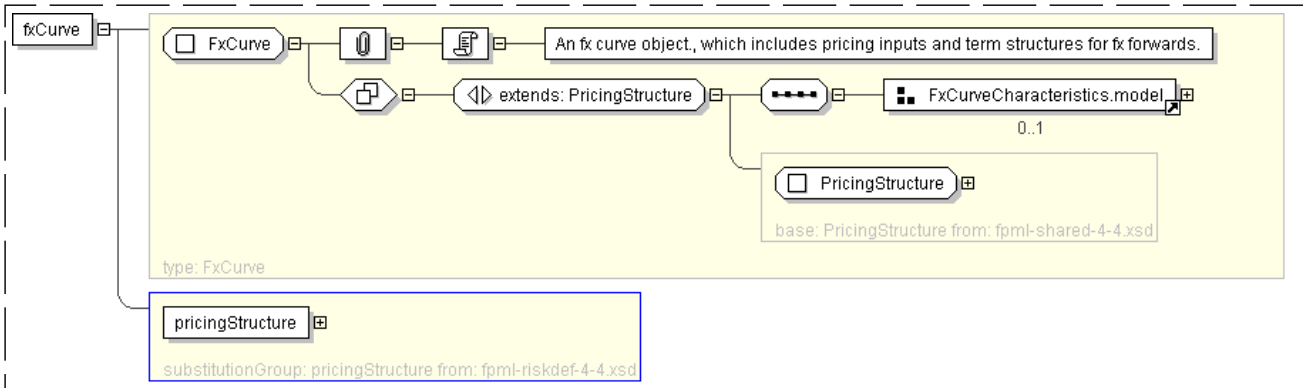
Logical Diagram



XML Instance Representation

```
<fxCurve
id=" xsd:ID [0..1]">
   <name> xsd:normalizedString </name> [0..1]
   'The name of the structure, e.g \"USDLIBOR-3M EOD Curve\".'

   <currency> Currency </currency> [0..1]
   'The currency that the structure is expressed in (this is relevant mostly for the Interes
   Rates asset class).'

Start Group: FxCurveCharacteristics.model [0..1]
      <quotedCurrencyPair> QuotedCurrencyPair </quotedCurrencyPair> [1]
      'Defines the two currencies for an FX trade and the quotation relationship between the
      two currencies.'

End Group: FxCurveCharacteristics.model
</fxCurve>
```

Diagram



Schema Component Representation

```
<xsd:element name="fxCurve" type=" FxCurve " substitutionGroup="pricingStructure"/>
```

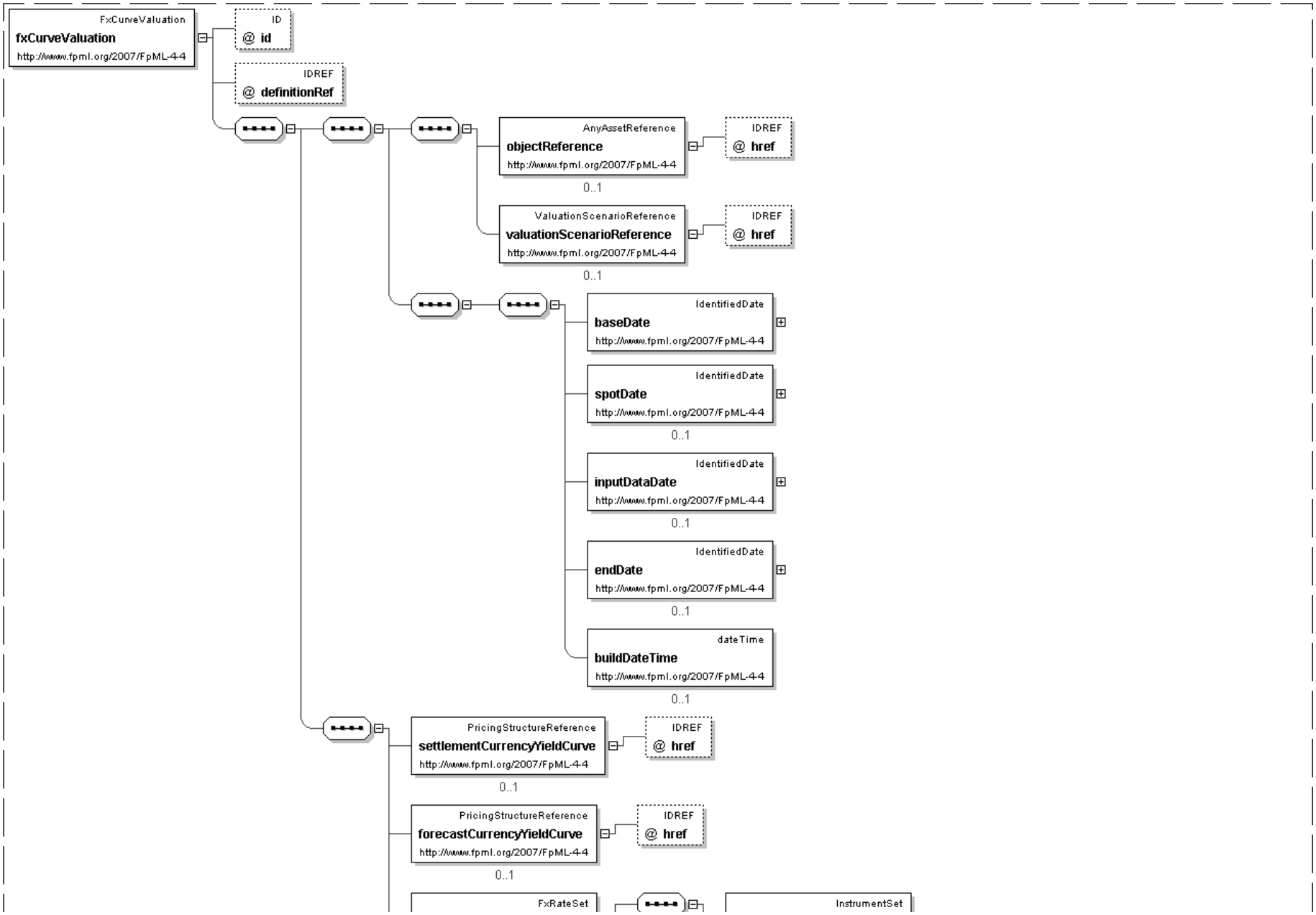
top

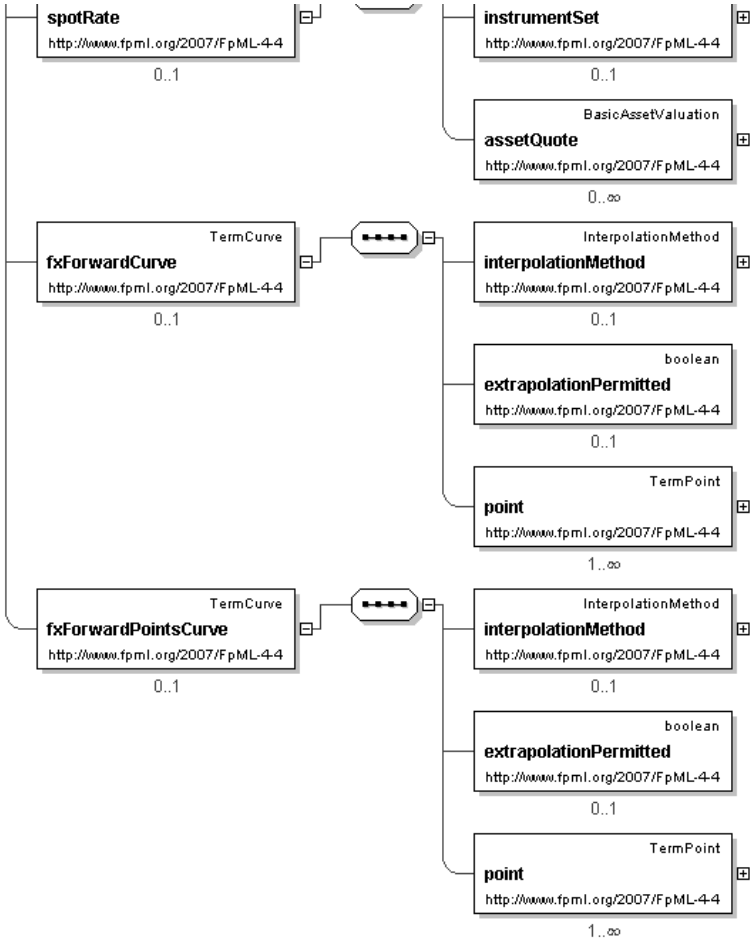
Element: fxCurveValuation

- *This element can be used wherever the following element is referenced:*
  - pricingStructureValuation

Name	fxCurveValuation
Type	FxCurveValuation
Nillable	no
Abstract	no

Logical Diagram





XML Instance Representation

```
<fxCurveValuation
id=" xsd:ID [0..1]"
definitionRef=" xsd:IDREF [0..1]
'An optional reference to the scenario that this valuation applies to.'

">
   <objectReference> AnyAssetReference </objectReference> [0..1]
   'A reference to the asset or pricing structure that this values.'

   <valuationScenarioReference> ValuationScenarioReference </valuationScenarioReference> [0..1]
   'A reference to the valuation scenario used to calculate this valuation. If the
   Valuation occurs within a ValuationSet, this value is optional and is defaulted from
   the ValuationSet. If this value occurs in both places, the lower level value (i.e. the
   one here) overrides that in the higher (i.e. ValuationSet).'

   <baseDate> IdentifiedDate </baseDate> [1]
   'The base date for which the structure applies, i.e. the curve date. Normally this will
   align with the valuation date.'

   <spotDate> IdentifiedDate </spotDate> [0..1]
   'The spot settlement date for which the structure applies, normally 0-2 days after the
```

base date. The difference between the baseDate and the spotDate is termed the settlement lag, and is sometimes called \"days to spot\".'

<inputDataDate> IdentifiedDate </inputDataDate> [0..1]

'The date from which the input data used to construct the pricing input was obtained. Often the same as the baseDate, but sometimes the pricing input may be \"rolled forward\", in which input data from one date is used to generate a curve for a later date.'

<endDate> IdentifiedDate </endDate> [0..1]

'The last date for which data is supplied in this pricing input.'

<buildDateTime> xsd:dateTime </buildDateTime> [0..1]

'The date and time when the pricing input was generated.'

<settlementCurrencyYieldCurve> PricingStructureReference </settlementCurrencyYieldCurve> [0..1]
<forecastCurrencyYieldCurve> PricingStructureReference </forecastCurrencyYieldCurve> [0..1]
<spotRate> FxRateSet </spotRate> [0..1]
<fxForwardCurve> TermCurve </fxForwardCurve> [0..1]

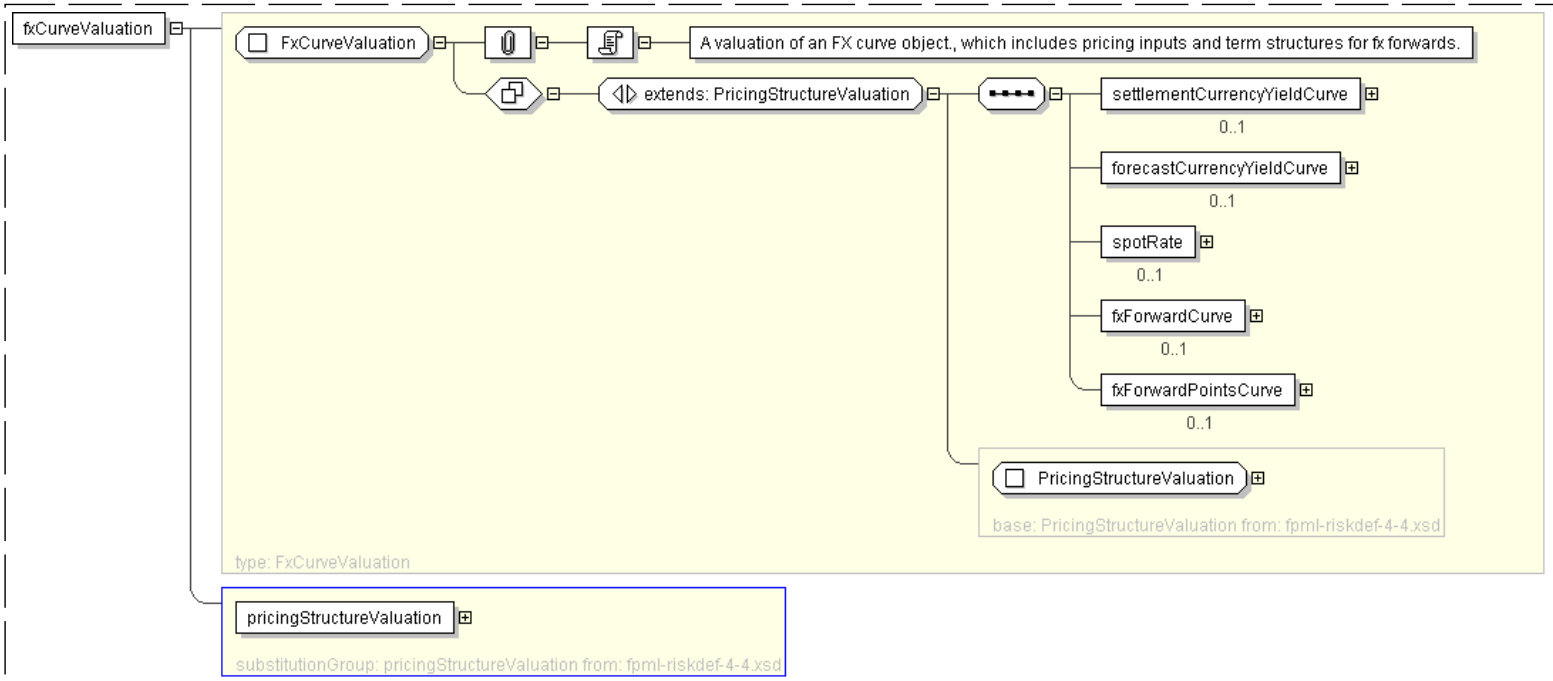
'A curve of fx forward rates'

<fxForwardPointsCurve> TermCurve </fxForwardPointsCurve> [0..1]

'A curve of fx forward point spreads.'

</fxCurveValuation>

Diagram



Schema Component Representation

```
<xsd:element name="fxCurveValuation" type=" FxCurveValuation
" substitutionGroup="pricingStructureValuation"/>
```

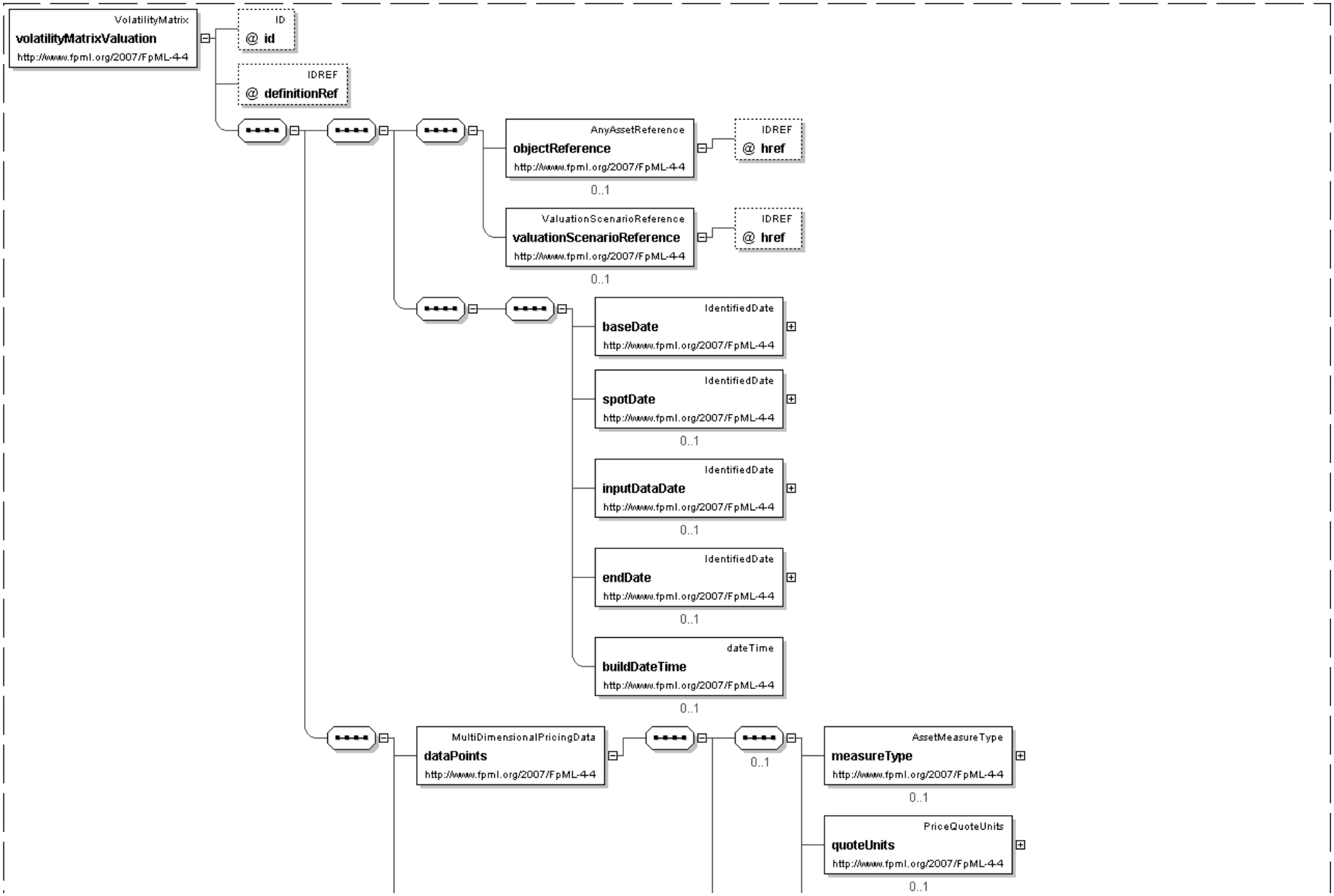
top

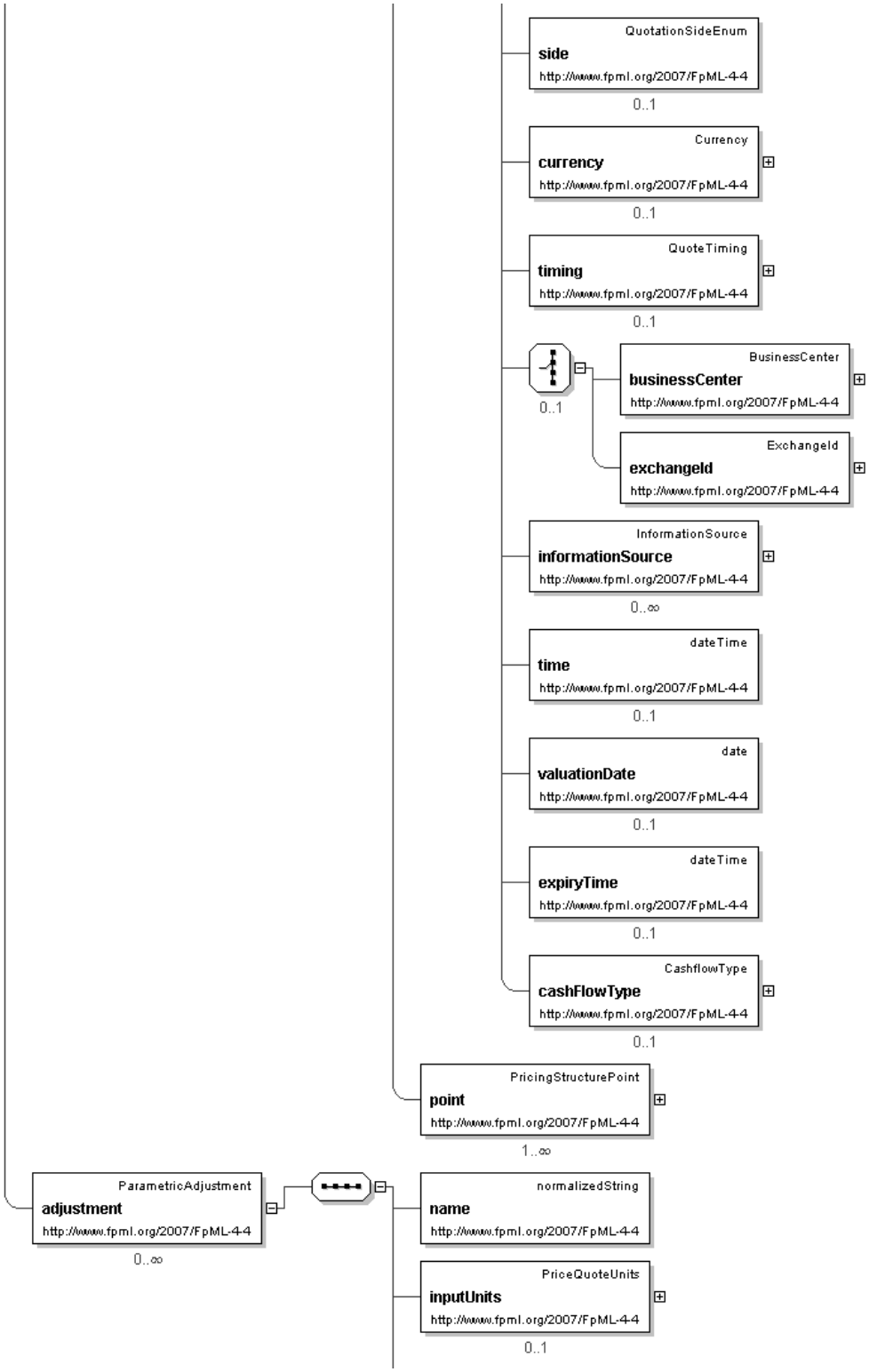
Element: volatilityMatrixValuation

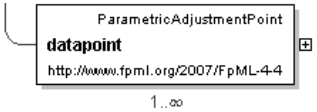
- *This element can be used wherever the following element is referenced:*
  - pricingStructureValuation

Name	volatilityMatrixValuation
Type	VolatilityMatrix
Nillable	no
Abstract	no

Logical Diagram



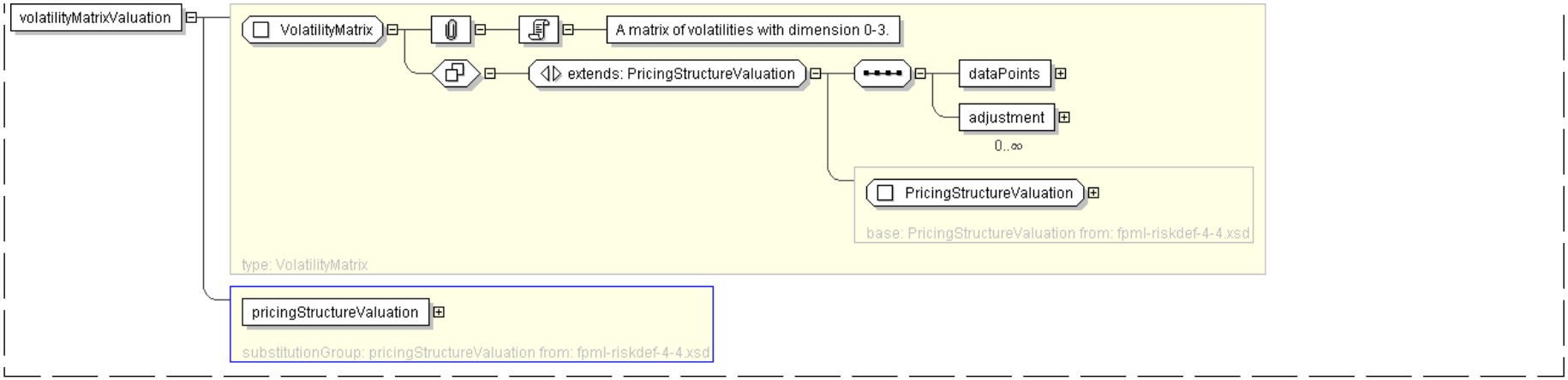

QuotationSideEnum
side
http://www.fpml.org/2007/FpML-4-4
0..1
Currency
currency
http://www.fpml.org/2007/FpML-4-4
0..1
QuoteTiming
timing
http://www.fpml.org/2007/FpML-4-4
0..1
0..1
BusinessCenter
businessCenter
http://www.fpml.org/2007/FpML-4-4
ExchangeId
exchangeId
http://www.fpml.org/2007/FpML-4-4
InformationSource
informationSource
http://www.fpml.org/2007/FpML-4-4
0..∞
dateTime
time
http://www.fpml.org/2007/FpML-4-4
0..1
date
valuationDate
http://www.fpml.org/2007/FpML-4-4
0..1
dateTime
expiryTime
http://www.fpml.org/2007/FpML-4-4
0..1
CashflowType
cashFlowType
http://www.fpml.org/2007/FpML-4-4
0..1
PricingStructurePoint
point
http://www.fpml.org/2007/FpML-4-4
1..∞
ParametricAdjustment
adjustment
http://www.fpml.org/2007/FpML-4-4
0..∞
normalizedString
name
http://www.fpml.org/2007/FpML-4-4
PriceQuoteUnits
inputUnits
http://www.fpml.org/2007/FpML-4-4
0..1



XML Instance Representation

```
<volatilityMatrixValuation
id=" xsd:ID [0..1]"
definitionRef=" xsd:IDREF [0..1]
 'An optional reference to the scenario that this valuation applies to.'

">
   <objectReference> AnyAssetReference </objectReference> [0..1]
    'A reference to the asset or pricing structure that this values.'

   <valuationScenarioReference> ValuationScenarioReference </valuationScenarioReference> [0..1]
    'A reference to the valuation scenario used to calculate this valuation. If the
    Valuation occurs within a ValuationSet, this value is optional and is defaulted from
    the ValuationSet. If this value occurs in both places, the lower level value (i.e. the
    one here) overrides that in the higher (i.e. ValuationSet).'

   <baseDate> IdentifiedDate </baseDate> [1]
    'The base date for which the structure applies, i.e. the curve date. Normally this will
    align with the valuation date.'

   <spotDate> IdentifiedDate </spotDate> [0..1]
    'The spot settlement date for which the structure applies, normally 0-2 days after the
    base date. The difference between the baseDate and the spotDate is termed the settlement
    lag, and is sometimes called \"days to spot\".'

   <inputDataDate> IdentifiedDate </inputDataDate> [0..1]
    'The date from which the input data used to construct the pricing input was obtained. Often
    the same as the baseDate, but sometimes the pricing input may be \"rolled forward\", in
    which input data from one date is used to generate a curve for a later date.'

   <endDate> IdentifiedDate </endDate> [0..1]
    'The last date for which data is supplied in this pricing input.'

   <buildDateTime> xsd:dateTime </buildDateTime> [0..1]
    'The date and time when the pricing input was generated.'

   <dataPoints> MultiDimensionalPricingData </dataPoints> [1]
    'The raw volatility matrix data, expressed as a multi-dimensional array.'

   <adjustment> ParametricAdjustment </adjustment> [0..*]
    'An adjustment factor, such as for vol smile/skew.'

</volatilityMatrixValuation>
```

Diagram



Schema Component Representation

```
<xsd:element name="volatilityMatrixValuation" type=" VolatilityMatrix
" substitutionGroup="pricingStructureValuation"/>
```

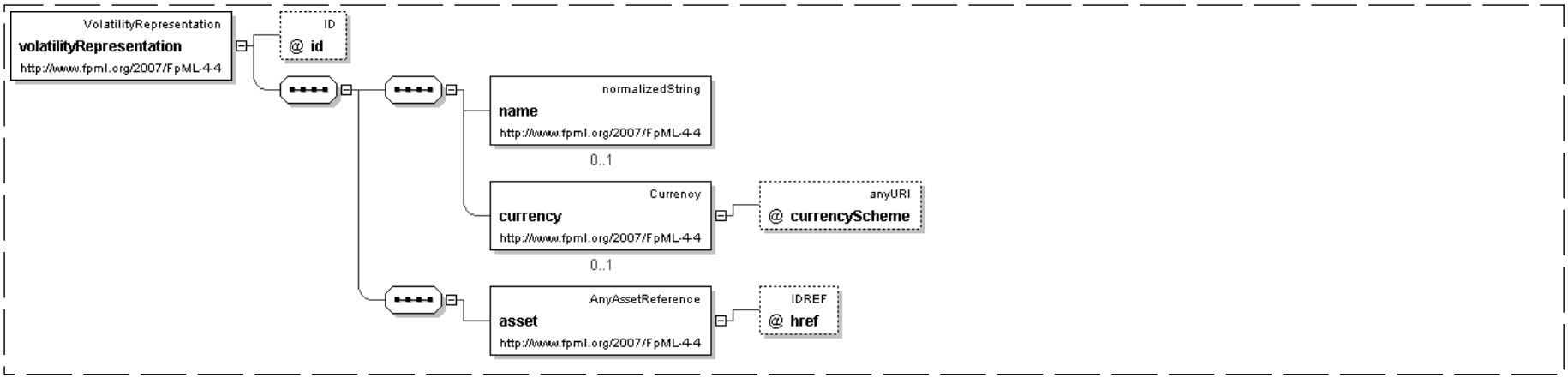
top

Element: volatilityRepresentation

- *This element can be used wherever the following element is referenced:*
  - pricingStructure

Name	volatilityRepresentation
Type	VolatilityRepresentation
Nillable	no
Abstract	no

Logical Diagram

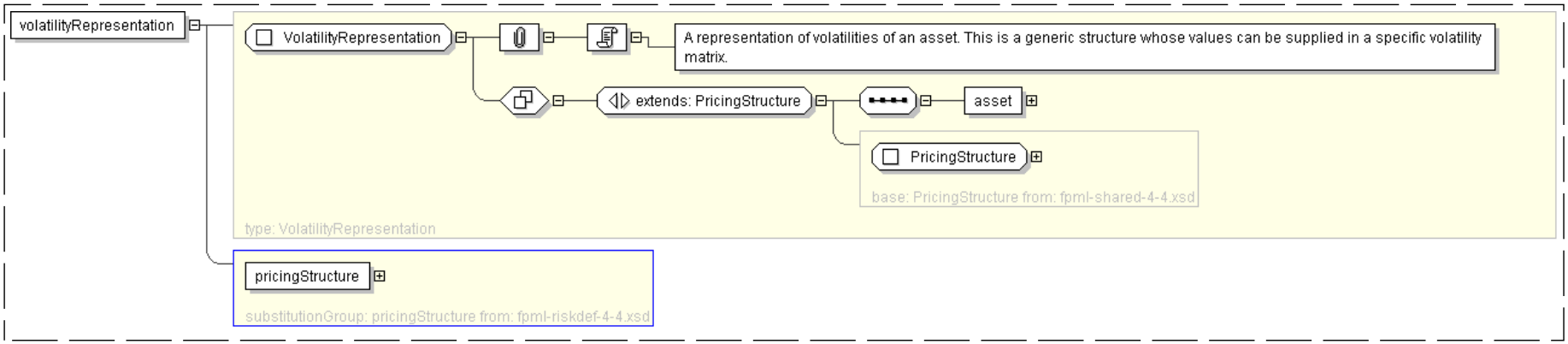


XML Instance Representation

```
<volatilityRepresentation
id=" xsd:ID [0..1]">
   <name> xsd:normalizedString </name> [0..1]
   'The name of the structure, e.g \"USDLIBOR-3M EOD Curve\".'
```

```
<currency> Currency </currency> [0..1]
'The currency that the structure is expressed in (this is relevant mostly for the Interes
Rates asset class).'

<asset> AnyAssetReference </asset> [1]
'A reference to the asset whose volatility is modeled.'

</volatilityRepresentation>
```

Diagram



Schema Component Representation

```
<xsd:element name="volatilityRepresentation" type=" VolatilityRepresentation
" substitutionGroup="pricingStructure"/>
```

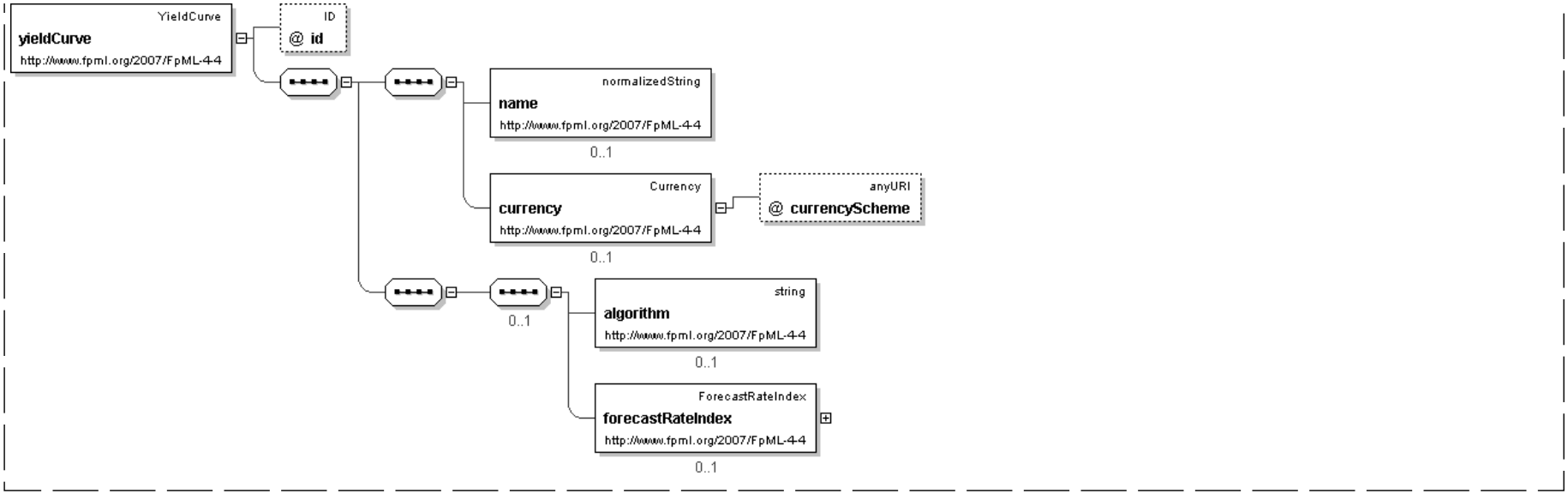
top

Element: yieldCurve

- *This element can be used wherever the following element is referenced:*
  - pricingStructure

Name	yieldCurve
Type	YieldCurve
Nillable	no
Abstract	no

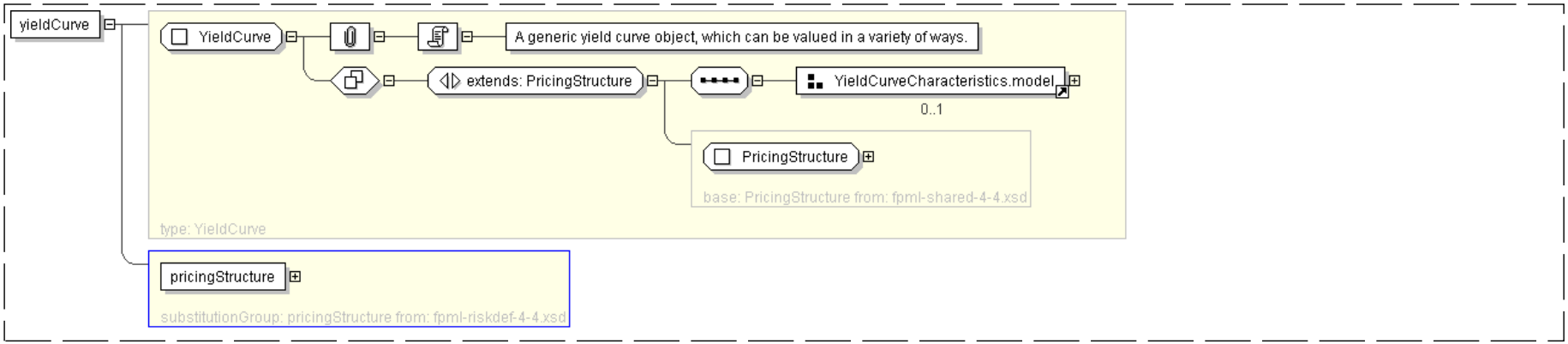
Logical Diagram



XML Instance Representation

```
<yieldCurve
id=" xsd:ID [0..1]">
   <name> xsd:normalizedString </name> [0..1]
   'The name of the structure, e.g \"USDLIBOR-3M EOD Curve\".'

   <currency> Currency </currency> [0..1]
   'The currency that the structure is expressed in (this is relevant mostly for the Interes
   Rates asset class).'

Start Group: YieldCurveCharacteristics.model [0..1]
      <algorithm> xsd:string </algorithm> [0..1]
      <forecastRateIndex> ForecastRateIndex </forecastRateIndex> [0..1]
End Group: YieldCurveCharacteristics.model
</yieldCurve>
```

Diagram



Schema Component Representation

```
<xsd:element name="yieldCurve" type=" YieldCurve " substitutionGroup="pricingStructure"/>
```

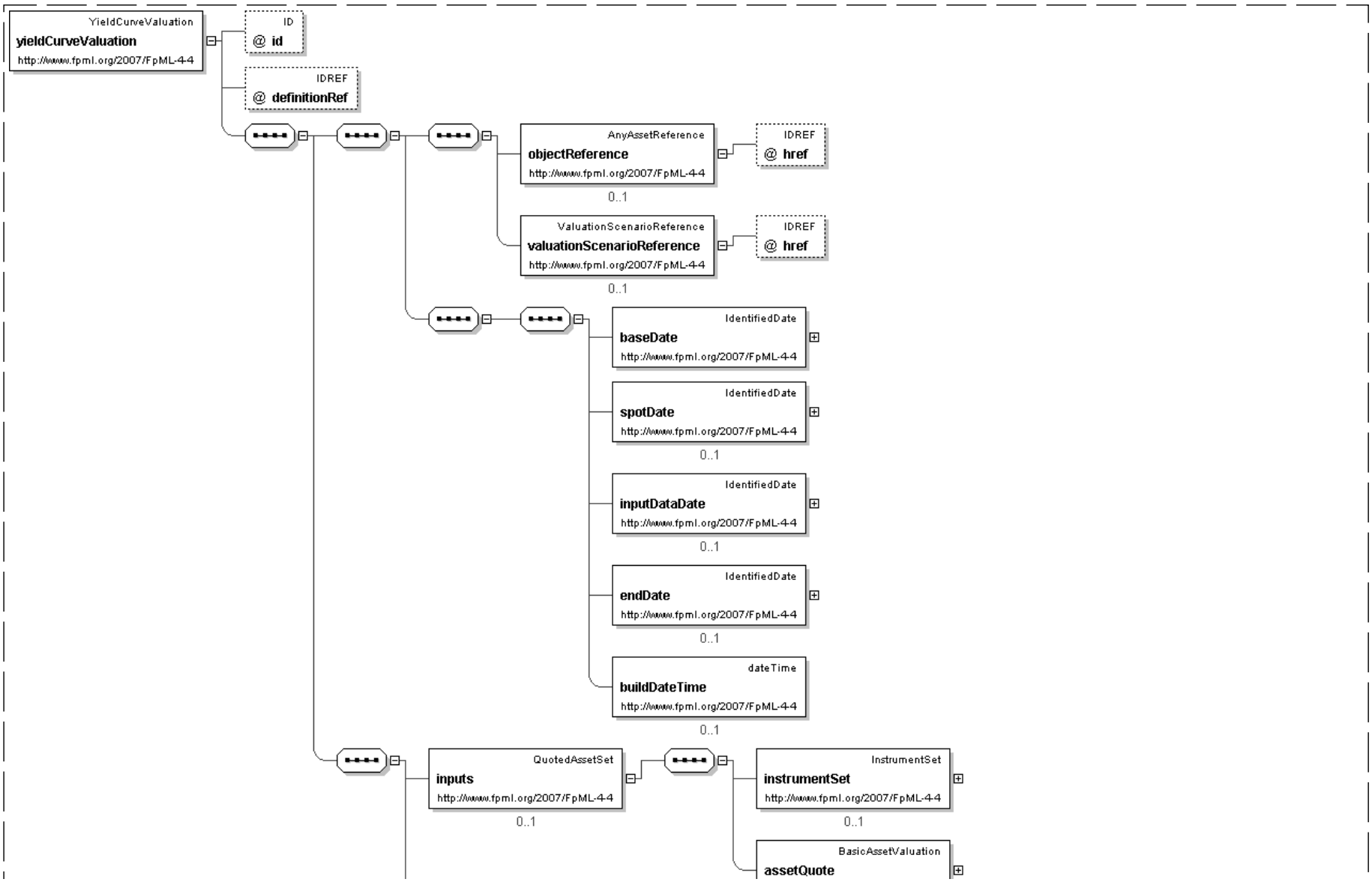
top

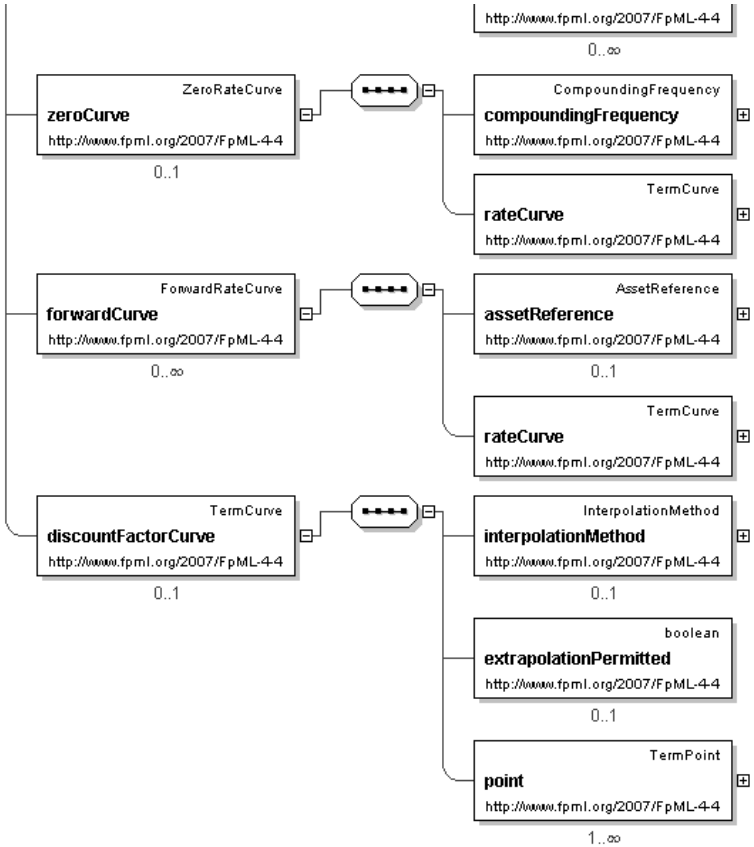
Element: yieldCurveValuation

- *This element can be used wherever the following element is referenced:*
  - pricingStructureValuation

Name	yieldCurveValuation
Type	YieldCurveValuation
Nillable	no
Abstract	no

Logical Diagram



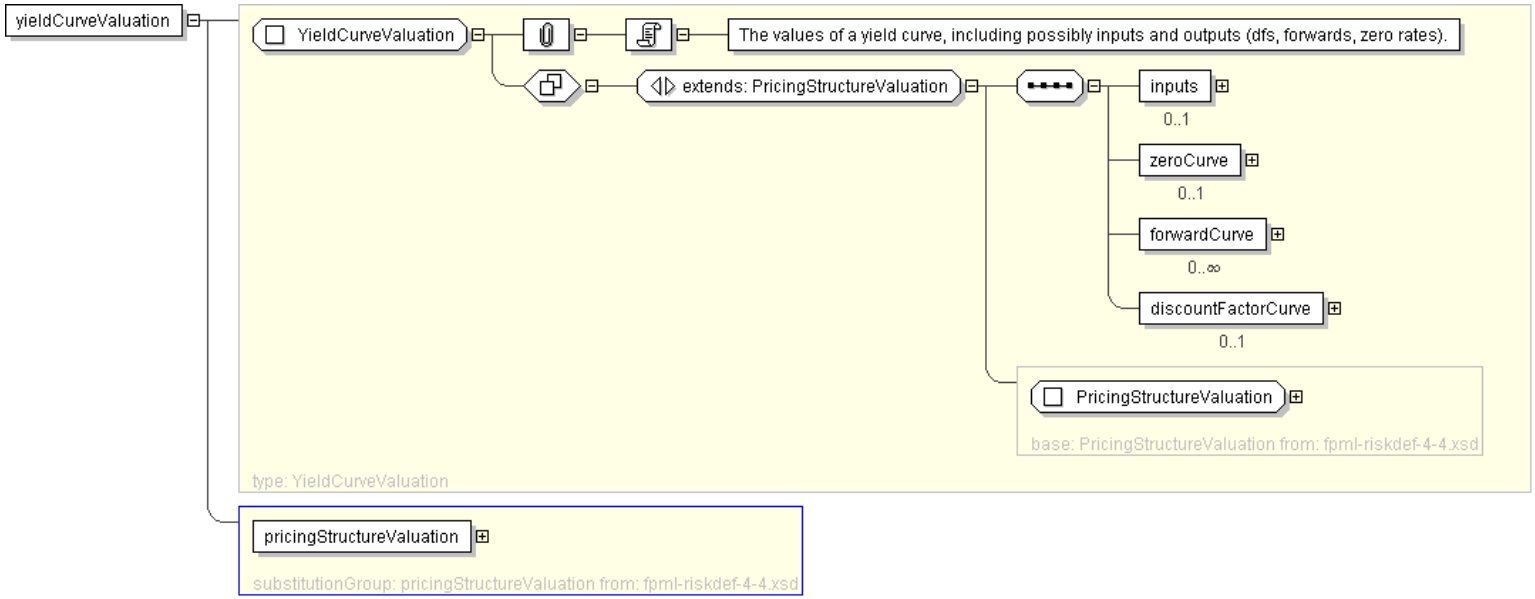


XML Instance Representation

```
<yieldCurveValuation
id=" xsd:ID [0..1]"
definitionRef=" xsd:IDREF [0..1]
'An optional reference to the scenario that this valuation applies to.'

">
   <objectReference> AnyAssetReference </objectReference> [0..1]
   'A reference to the asset or pricing structure that this values.'

   <valuationScenarioReference> ValuationScenarioReference </valuationScenarioReference> [0..1]
   'A reference to the valuation scenario used to calculate this valuation. If the
   Valuation occurs within a ValuationSet, this value is optional and is defaulted from
   the ValuationSet. If this value occurs in both places, the lower level value (i.e. the
   one here) overrides that in the higher (i.e. ValuationSet).'

   <baseDate> IdentifiedDate </baseDate> [1]
   'The base date for which the structure applies, i.e. the curve date. Normally this will
   align with the valuation date.'

   <spotDate> IdentifiedDate </spotDate> [0..1]
   'The spot settlement date for which the structure applies, normally 0-2 days after the
   base date. The difference between the baseDate and the spotDate is termed the settlement
   lag, and is sometimes called \"days to spot\".'

   <inputDataDate> IdentifiedDate </inputDataDate> [0..1]
```

```
    'The date from which the input data used to construct the pricing input was obtained. Often
    the same as the baseDate, but sometimes the pricing input may be \"rolled forward\", in
    which input data from one date is used to generate a curve for a later date.'

    <endDate> IdentifiedDate </endDate> [0..1]
    'The last date for which data is supplied in this pricing input.'

    <buildDateTime> xsd:dateTime </buildDateTime> [0..1]
    'The date and time when the pricing input was generated.'

    <inputs> QuotedAssetSet </inputs> [0..1]
    <zeroCurve> ZeroRateCurve </zeroCurve> [0..1]
    'A curve of zero rates.'

    <forwardCurve> ForwardRateCurve </forwardCurve> [0..*]
    'A curve of forward rates.'

    <discountFactorCurve> TermCurve </discountFactorCurve> [0..1]
    'A curve of discount factors.'

</yieldCurveValuation>
```

Diagram



Schema Component Representation

```
<xsd:element name="yieldCurveValuation" type=" YieldCurveValuation
" substitutionGroup="pricingStructureValuation"/>
```

top

Global Definitions

Complex Type: CompoundingFrequency

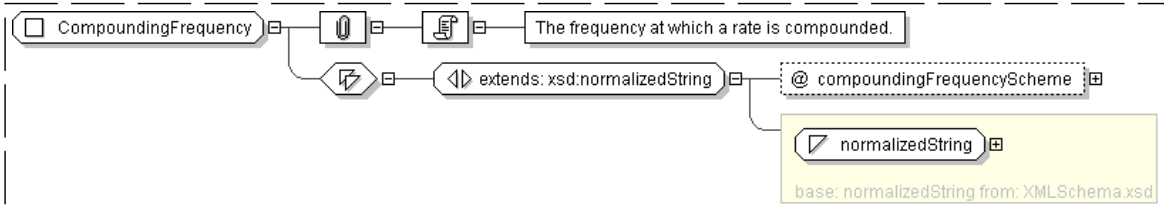
Super-types:	xsd:normalizedString < **CompoundingFrequency** (by extension)
Sub-types:	None

Name	CompoundingFrequency
Used by (from the same schema document)	Complex Type **ZeroRateCurve**
Abstract	no
Documentation	The frequency at which a rate is compounded.

XML Instance Representation

```
<...
compoundingFrequencyScheme=" xsd:anyURI [0..1]">
xsd:normalizedString
</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="CompoundingFrequency">
   <xsd:simpleContent>
      <xsd:extension base=" xsd:normalizedString ">
         <xsd:attribute name="compoundingFrequencyScheme" type=" xsd:anyURI " default="http://www.
         fpml.org/coding-scheme/compounding-frequency-1-0"/>
      </xsd:extension>
   </xsd:simpleContent>
</xsd:complexType>
```

top

Complex Type: CreditCurve

Super-types:	PricingStructure < **CreditCurve** (by extension)
Sub-types:	None

Name	CreditCurve
Used by (from the same schema document)	Element **creditCurve**
Abstract	no
Documentation	A generic credit curve definition.

XML Instance Representation

```
<...
id=" xsd:ID [0..1]">
   <name> xsd:normalizedString </name> [0..1]
   'The name of the structure, e.g \"USDLIBOR-3M EOD Curve\".'

   <currency> Currency </currency> [0..1]
   'The currency that the structure is expressed in (this is relevant mostly for the Interes
   Rates asset class).'

Start Group: CreditCurveCharacteristics.model [0..1]
```

Start Choice [1]

<referenceEntity> LegalEntity </referenceEntity> [1]

'The entity for which this is defined.'

<creditEntityReference> LegalEntityReference </creditEntityReference> [1]

'An XML reference a credit entity defined elsewhere in the document.'

End Choice

<creditEvents> CreditEvents </creditEvents> [0..1]

'The material credit event.'

<seniority> CreditSeniority </seniority> [1]

'The level of seniority of the deliverable obligation.'

<secured> xsd:boolean </secured> [1]

'Whether the deliverable obligation is secured or unsecured.'

<currency> Currency </currency> [1]

'The currency of denomination of the deliverable obligation.'

<obligations> Obligations </obligations> [0..1]

'The underlying obligations of the reference entity on which you are buying or selling protection'

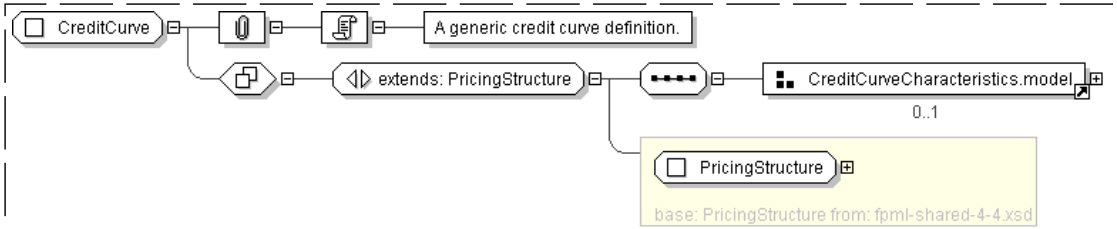
<deliverableObligations> DeliverableObligations </deliverableObligations> [0..1]

'What sort of obligation may be delivered in the event of the credit event. ISDA 2003 Term: Obligation Category/Deliverable Obligation Category'

End Group: CreditCurveCharacteristics.model

</...>

Diagram



Schema Component Representation

```
<xsd:complexType name="CreditCurve">
   <xsd:complexContent>
      <xsd:extension base=" PricingStructure ">
         <xsd:sequence>
            <xsd:group ref=" CreditCurveCharacteristics.model " minOccurs="0"/>
         </xsd:sequence>
      </xsd:extension>
   </xsd:complexContent>
</xsd:complexType>
```

top

Complex Type: CreditCurveValuation

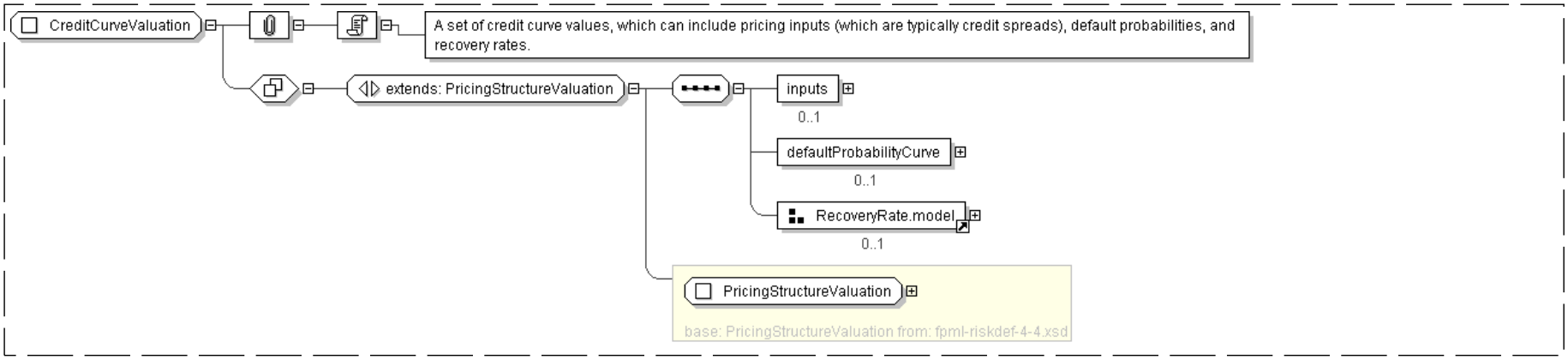
Super-types:	PricingStructureValuation < **CreditCurveValuation** (by extension)
Sub-types:	None

Name	CreditCurveValuation
Used by (from the same schema document)	Element **creditCurveValuation**
Abstract	no
Documentation	A set of credit curve values, which can include pricing inputs (which are typically credit spreads), default probabilities, and recovery rates.

XML Instance Representation

```
<...
id=" xsd:ID [0..1]"
definitionRef=" xsd:IDREF [0..1]
'An optional reference to the scenario that this valuation applies to.'

">
   <objectReference> AnyAssetReference </objectReference> [0..1]
   'A reference to the asset or pricing structure that this values.'

   <valuationScenarioReference> ValuationScenarioReference </valuationScenarioReference> [0..1]
   'A reference to the valuation scenario used to calculate this valuation. If the
   Valuation occurs within a ValuationSet, this value is optional and is defaulted from
   the ValuationSet. If this value occurs in both places, the lower level value (i.e. the
   one here) overrides that in the higher (i.e. ValuationSet).'

   <baseDate> IdentifiedDate </baseDate> [1]
   'The base date for which the structure applies, i.e. the curve date. Normally this will
   align with the valuation date.'

   <spotDate> IdentifiedDate </spotDate> [0..1]
   'The spot settlement date for which the structure applies, normally 0-2 days after the
   base date. The difference between the baseDate and the spotDate is termed the settlement
   lag, and is sometimes called \"days to spot\".'

   <inputDataDate> IdentifiedDate </inputDataDate> [0..1]
   'The date from which the input data used to construct the pricing input was obtained. Often
   the same as the baseDate, but sometimes the pricing input may be \"rolled forward\", in
   which input data from one date is used to generate a curve for a later date.'

   <endDate> IdentifiedDate </endDate> [0..1]
   'The last date for which data is supplied in this pricing input.'

   <buildDateTime> xsd:dateTime </buildDateTime> [0..1]
   'The date and time when the pricing input was generated.'

   <inputs> QuotedAssetSet </inputs> [0..1]
   <defaultProbabilityCurve> DefaultProbabilityCurve </defaultProbabilityCurve> [0..1]
   'A curve of default probabilities.'

Start Group: RecoveryRate.model [0..1]
'A recovery rate value or curve.'

Start Choice [1]
         <recoveryRate> xsd:decimal </recoveryRate> [1]
         'A single recovery rate, to be used for all terms.'

         <recoveryRateCurve> TermCurve </recoveryRateCurve> [1]
         'A curve of recovery rates, allowing different terms to have different recovery rates.'

End Choice
End Group: RecoveryRate.model
</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="CreditCurveValuation">
   <xsd:complexContent>
      <xsd:extension base=" PricingStructureValuation ">
         <xsd:sequence>
            <xsd:element name="inputs" type=" QuotedAssetSet " minOccurs="0"/>
            <xsd:element name="defaultProbabilityCurve" type=" DefaultProbabilityCurve " minOccurs="0"/>
            <xsd:group ref=" RecoveryRate.model " minOccurs="0"/>
         </xsd:sequence>
      </xsd:extension>
   </xsd:complexContent>
</xsd:complexType>
```

top

Complex Type: DefaultProbabilityCurve

Super-types:	PricingStructureValuation < **DefaultProbabilityCurve** (by extension)
Sub-types:	None

Name	DefaultProbabilityCurve
Used by (from the same schema document)	Complex Type **CreditCurveValuation**
Abstract	no
Documentation	A set of default probabilities.

XML Instance Representation

```
<...
id=" xsd:ID [0..1]"
definitionRef=" xsd:IDREF [0..1]
'An optional reference to the scenario that this valuation applies to.'

">
   <objectReference> AnyAssetReference </objectReference> [0..1]
   'A reference to the asset or pricing structure that this values.'

   <valuationScenarioReference> ValuationScenarioReference </valuationScenarioReference> [0..1]
   'A reference to the valuation scenario used to calculate this valuation. If the
   Valuation occurs within a ValuationSet, this value is optional and is defaulted from
   the ValuationSet. If this value occurs in both places, the lower level value (i.e. the
   one here) overrides that in the higher (i.e. ValuationSet).'
```

<baseDate> IdentifiedDate </baseDate> [1]

'The base date for which the structure applies, i.e. the curve date. Normally this will align with the valuation date.'

<spotDate> IdentifiedDate </spotDate> [0..1]

'The spot settlement date for which the structure applies, normally 0-2 days after the base date. The difference between the baseDate and the spotDate is termed the settlement lag, and is sometimes called \"days to spot\".'

<inputDataDate> IdentifiedDate </inputDataDate> [0..1]

'The date from which the input data used to construct the pricing input was obtained. Often the same as the baseDate, but sometimes the pricing input may be \"rolled forward\", in which input data from one date is used to generate a curve for a later date.'

<endDate> IdentifiedDate </endDate> [0..1]

'The last date for which data is supplied in this pricing input.'

<buildDateTime> xsd:dateTime </buildDateTime> [0..1]

'The date and time when the pricing input was generated.'

<baseYieldCurve> PricingStructureReference </baseYieldCurve> [1]

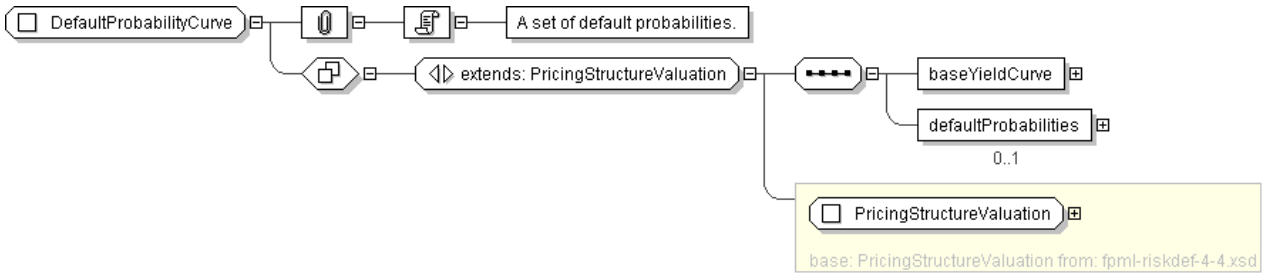
'A reference to the yield curve values used as a basis for this credit curve valuation.'

<defaultProbabilities> TermCurve </defaultProbabilities> [0..1]

'A collection of default probabilities.'

</...>

Diagram



Schema Component Representation

```
<xsd:complexType name="DefaultProbabilityCurve">
   <xsd:complexContent>
      <xsd:extension base=" PricingStructureValuation ">
         <xsd:sequence>
            <xsd:element name="baseYieldCurve" type=" PricingStructureReference "/>
            <xsd:element name="defaultProbabilities" type=" TermCurve " minOccurs="0"/>
         </xsd:sequence>
      </xsd:extension>
   </xsd:complexContent>
</xsd:complexType>
```

top

Complex Type: ForwardRateCurve

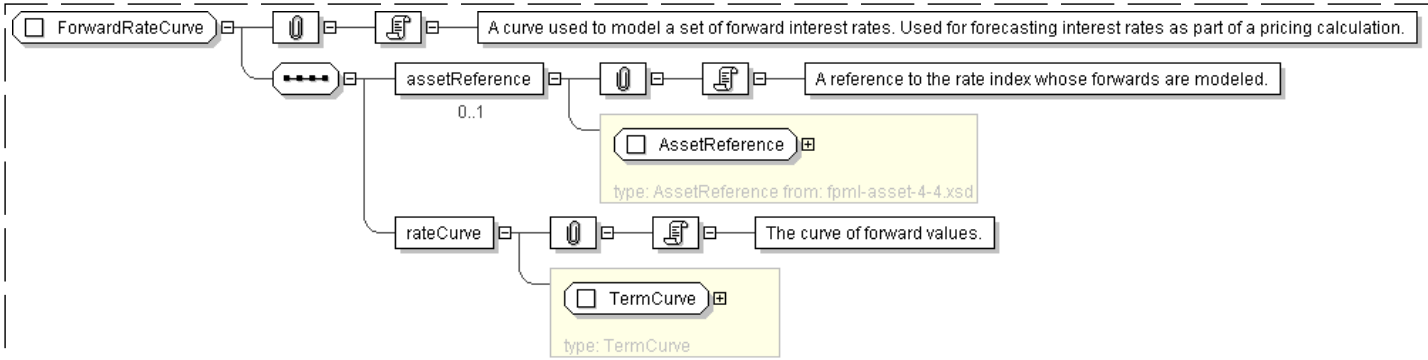
Super-types:	None
Sub-types:	None

Name	ForwardRateCurve
Used by (from the same schema document)	Complex Type **YieldCurveValuation**
Abstract	no
Documentation	A curve used to model a set of forward interest rates. Used for forecasting interest rates as part of a pricing calculation.

XML Instance Representation

```
<...>
   <assetReference> AssetReference </assetReference> [0..1]
   'A reference to the rate index whose forwards are modeled.'

   <rateCurve> TermCurve </rateCurve> [1]
   'The curve of forward values.'

</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="ForwardRateCurve">
   <xsd:sequence>
      <xsd:element name="assetReference" type=" AssetReference " minOccurs="0"/>
      <xsd:element name="rateCurve" type=" TermCurve "/>
   </xsd:sequence>
</xsd:complexType>
```

top

Complex Type: FxCurve

Super-types:	PricingStructure < **FxCurve** (by extension)
Sub-types:	None

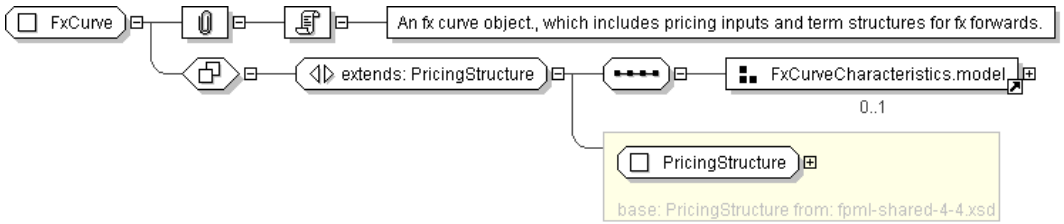
Name	FxCurve
Used by (from the same schema document)	Element **fxCurve**
Abstract	no
Documentation	An fx curve object., which includes pricing inputs and term structures for fx forwards.

XML Instance Representation

```
<...
id=" xsd:ID [0..1]">
   <name> xsd:normalizedString </name> [0..1]
   'The name of the structure, e.g \"USDLIBOR-3M EOD Curve\".'
```

```
   <currency> Currency </currency> [0..1]
   'The currency that the structure is expressed in (this is relevant mostly for the Interes
   Rates asset class).'

Start Group: FxCurveCharacteristics.model [0..1]
      <quotedCurrencyPair> QuotedCurrencyPair </quotedCurrencyPair> [1]
      'Defines the two currencies for an FX trade and the quotation relationship between the
      two currencies.'

End Group: FxCurveCharacteristics.model
</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="FxCurve">
   <xsd:complexContent>
      <xsd:extension base=" PricingStructure ">
         <xsd:sequence>
            <xsd:group ref=" FxCurveCharacteristics.model " minOccurs="0"/>
         </xsd:sequence>
      </xsd:extension>
   </xsd:complexContent>
</xsd:complexType>
```

top

Complex Type: FxCurveValuation

Super-types:	PricingStructureValuation < **FxCurveValuation** (by extension)
Sub-types:	None

Name	FxCurveValuation
Used by (from the same schema document)	Element **fxCurveValuation**
Abstract	no
Documentation	A valuation of an FX curve object., which includes pricing inputs and term structures for fx forwards.

XML Instance Representation

```
<...
id=" xsd:ID [0..1]"
definitionRef=" xsd:IDREF [0..1]
'An optional reference to the scenario that this valuation applies to.'

">
   <objectReference> AnyAssetReference </objectReference> [0..1]
   'A reference to the asset or pricing structure that this values.'

   <valuationScenarioReference> ValuationScenarioReference </valuationScenarioReference> [0..1]
   'A reference to the valuation scenario used to calculate this valuation. If the
   Valuation occurs within a ValuationSet, this value is optional and is defaulted from
```

the ValuationSet. If this value occurs in both places, the lower level value (i.e. the one here) overrides that in the higher (i.e. ValuationSet).'

<baseDate> IdentifiedDate </baseDate> [1]

'The base date for which the structure applies, i.e. the curve date. Normally this will align with the valuation date.'

<spotDate> IdentifiedDate </spotDate> [0..1]

'The spot settlement date for which the structure applies, normally 0-2 days after the base date. The difference between the baseDate and the spotDate is termed the settlement lag, and is sometimes called \"days to spot\".'

<inputDataDate> IdentifiedDate </inputDataDate> [0..1]

'The date from which the input data used to construct the pricing input was obtained. Often the same as the baseDate, but sometimes the pricing input may be \"rolled forward\", in which input data from one date is used to generate a curve for a later date.'

<endDate> IdentifiedDate </endDate> [0..1]

'The last date for which data is supplied in this pricing input.'

<buildDateTime> xsd:dateTime </buildDateTime> [0..1]

'The date and time when the pricing input was generated.'

<settlementCurrencyYieldCurve> PricingStructureReference </settlementCurrencyYieldCurve> [0..1]
<forecastCurrencyYieldCurve> PricingStructureReference </forecastCurrencyYieldCurve> [0..1]
<spotRate> FxRateSet </spotRate> [0..1]
<fxForwardCurve> TermCurve </fxForwardCurve> [0..1]

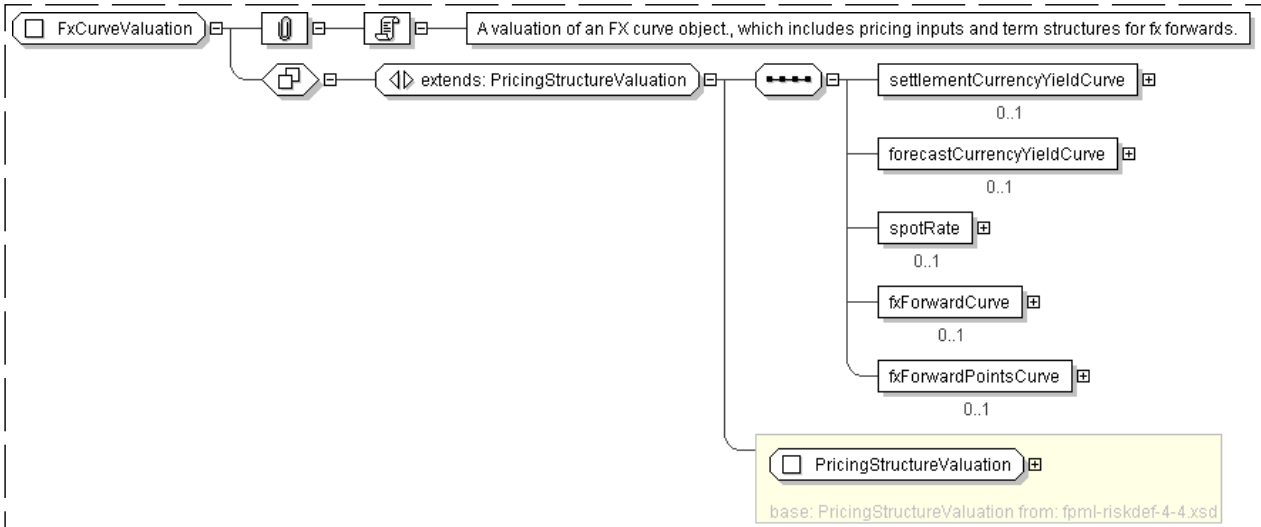
'A curve of fx forward rates'

<fxForwardPointsCurve> TermCurve </fxForwardPointsCurve> [0..1]

'A curve of fx forward point spreads.'

</...>

Diagram



Schema Component Representation

```
<xsd:complexType name="FxCurveValuation">
   <xsd:complexContent>
      <xsd:extension base=" PricingStructureValuation ">
```

```
        <xsd:sequence>
           <xsd:element name="settlementCurrencyYieldCurve" type=" PricingStructureReference
           " minOccurs="0"/>
           <xsd:element name="forecastCurrencyYieldCurve" type=" PricingStructureReference "
           minOccurs="0"/>
           <xsd:element name="spotRate" type=" FxRateSet " minOccurs="0"/>
           <xsd:element name="fxForwardCurve" type=" TermCurve " minOccurs="0"/>
           <xsd:element name="fxForwardPointsCurve" type=" TermCurve " minOccurs="0"/>
        </xsd:sequence>
     </xsd:extension>
   </xsd:complexContent>
</xsd:complexType>
```

top

Complex Type: FxRateSet

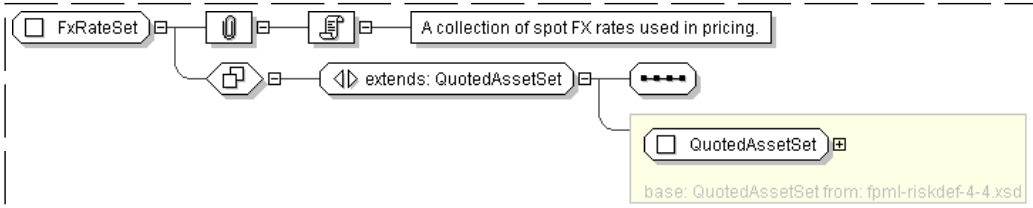
Super-types:	QuotedAssetSet < **FxRateSet** (by extension)
Sub-types:	None

Name	FxRateSet
Used by (from the same schema document)	Complex Type **FxCurveValuation**
Abstract	no
Documentation	A collection of spot FX rates used in pricing.

XML Instance Representation

```
<...>
   <instrumentSet> InstrumentSet </instrumentSet> [0..1]
   'A collection of instruments used as a basis for quotation.'

   <assetQuote> BasicAssetValuation </assetQuote> [0..*]
   'A collection of valuations (quotes) for the assets needed in the set. Normally these
   quotes will be for the underlying assets listed above, but they don\'t necesarily have to be.'

</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="FxRateSet">
   <xsd:complexContent>
      <xsd:extension base=" QuotedAssetSet ">
         <xsd:sequence/>
      </xsd:extension>
   </xsd:complexContent>
</xsd:complexType>
```

top

Complex Type: InterpolationMethod

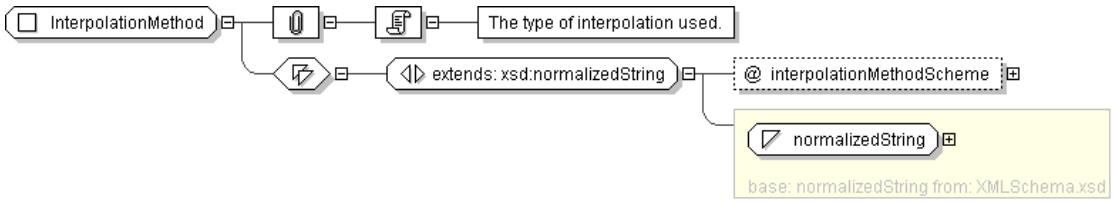
Super-types:	xsd:normalizedString < **InterpolationMethod** (by extension)
Sub-types:	None

Name	InterpolationMethod
Used by (from the same schema document)	Complex Type **TermCurve**
Abstract	no
Documentation	The type of interpolation used.

XML Instance Representation

```
<...
interpolationMethodScheme=" xsd:anyURI [0..1]">
xsd:normalizedString
</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="InterpolationMethod">
   <xsd:simpleContent>
      <xsd:extension base=" xsd:normalizedString ">
         <xsd:attribute name="interpolationMethodScheme" type=" xsd:anyURI " default="http://www.
         fpml.org/coding-scheme/interpolation-method-1-0"/>
      </xsd:extension>
   </xsd:simpleContent>
</xsd:complexType>
```

top

Complex Type: MultiDimensionalPricingData

Super-types:	None
Sub-types:	None

Name	MultiDimensionalPricingData
Used by (from the same schema document)	Complex Type **VolatilityMatrix**
Abstract	no
Documentation	A pricing data set that contains a series of points with coordinates. It is a sparse matrix representation of a multi-dimensional matrix.

XML Instance Representation

```
<...>
Start Group: QuotationCharacteristics.model [0..1]
'Characteristics that apply to all quotations in the pricing structure.'

      <measureType> AssetMeasureType </measureType> [0..1]
      'The type of the value that is measured. This could be an NPV, a cash flow, a clean price, etc.'

      <quoteUnits> PriceQuoteUnits </quoteUnits> [0..1]
      'The optional units that the measure is expressed in. If not supplied, this is assumed to be
```

a price/value in currency units.'

<side> QuotationSideEnum </side> [0..1]

'The side (bid/mid/ask) of the measure.'

<currency> Currency </currency> [0..1]

'The optional currency that the measure is expressed in. If not supplied, this is defaulted from the reportingCurrency in the valuationScenarioDefinition.'

<timing> QuoteTiming </timing> [0..1]

'When during a day the quote is for. Typically, if this element is supplied, the QuoteLocation needs also to be supplied.'

Start Group: QuoteLocation.model [0..1]

'Where the quote is from.'

Start Choice [1]

<businessCenter> BusinessCenter </businessCenter> [1]

'A city or other business center.'

<exchangeId> ExchangeId </exchangeId> [1]

'The exchange (e.g. stock or futures exchange) from which the quote is obtained.'

End Choice

End Group: QuoteLocation.model

<informationSource> InformationSource </informationSource> [0..*]

'The information source where a published or displayed market rate will be obtained, e.g. Telerate Page 3750.'

<time> xsd:dateTime </time> [0..1]

'When the quote was observed or derived.'

<valuationDate> xsd:date </valuationDate> [0..1]

'When the quote was computed.'

<expiryTime> xsd:dateTime </expiryTime> [0..1]

'When does the quote cease to be valid.'

<cashFlowType> CashflowType </cashFlowType> [0..1]

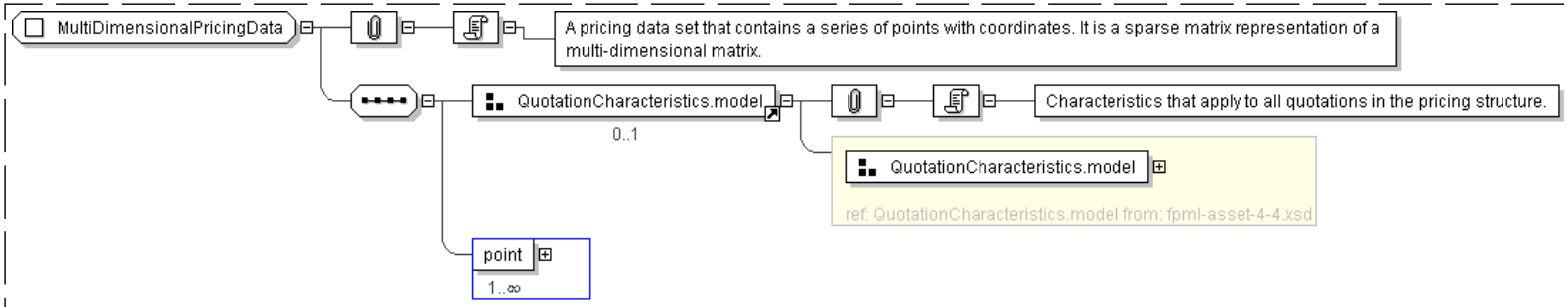
'For cash flows, the type of the cash flows. Examples include: Coupon payment, Premium Fee, Settlement Fee, Brokerage Fee, etc.'

End Group: QuotationCharacteristics.model

<point> PricingStructurePoint </point> [1..*]

</...>

Diagram



Schema Component Representation

```
<xsd:complexType name="MultiDimensionalPricingData">
   <xsd:sequence>
      <xsd:group ref=" QuotationCharacteristics.model " minOccurs="0"/>
      <xsd:element name="point" type=" PricingStructurePoint " maxOccurs="unbounded"/>
   </xsd:sequence>
</xsd:complexType>
```

top

Complex Type: ParametricAdjustment

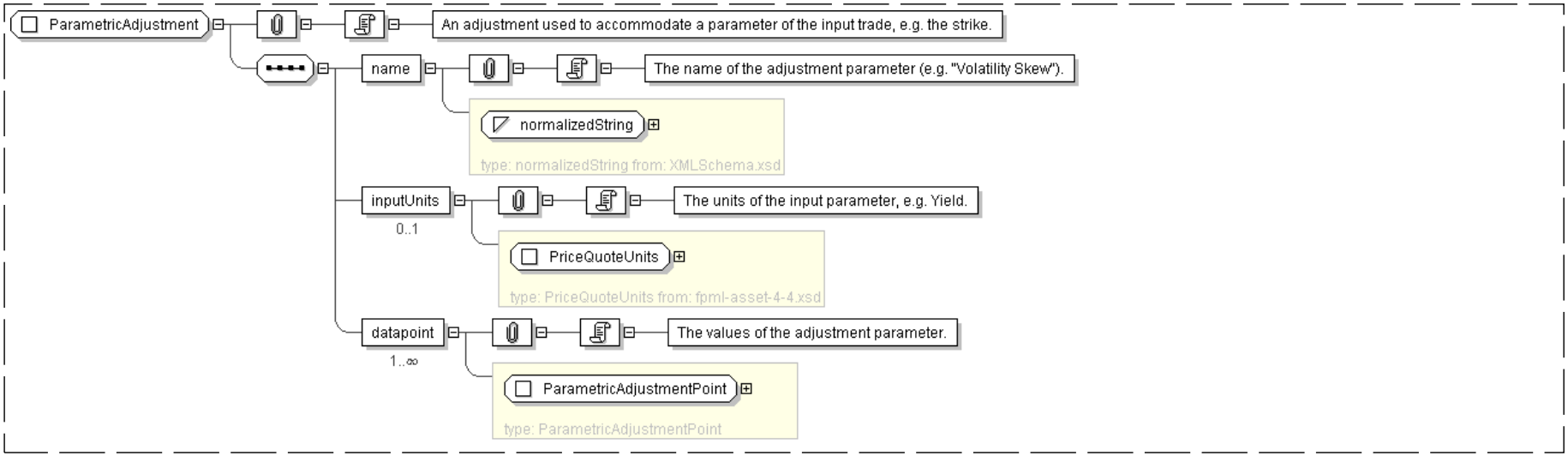
Super-types:	None
Sub-types:	None

Name	ParametricAdjustment
Used by (from the same schema document)	Complex Type **VolatilityMatrix**
Abstract	no
Documentation	An adjustment used to accommodate a parameter of the input trade, e.g. the strike.

XML Instance Representation

```
<...>
   <name> xsd:normalizedString </name> [1]
   'The name of the adjustment parameter (e.g. \"Volatility Skew\").'

   <inputUnits> PriceQuoteUnits </inputUnits> [0..1]
   'The units of the input parameter, e.g. Yield.'

   <datapoint> ParametricAdjustmentPoint </datapoint> [1..*]
   'The values of the adjustment parameter.'

</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="ParametricAdjustment">
```

```
   <xsd:sequence>
      <xsd:element name="name" type=" xsd:normalizedString "/>
      <xsd:element name="inputUnits" type=" PriceQuoteUnits " minOccurs="0"/>
      <xsd:element name="datapoint" type=" ParametricAdjustmentPoint " maxOccurs="unbounded"/>
   </xsd:sequence>
</xsd:complexType>
```

top

Complex Type: ParametricAdjustmentPoint

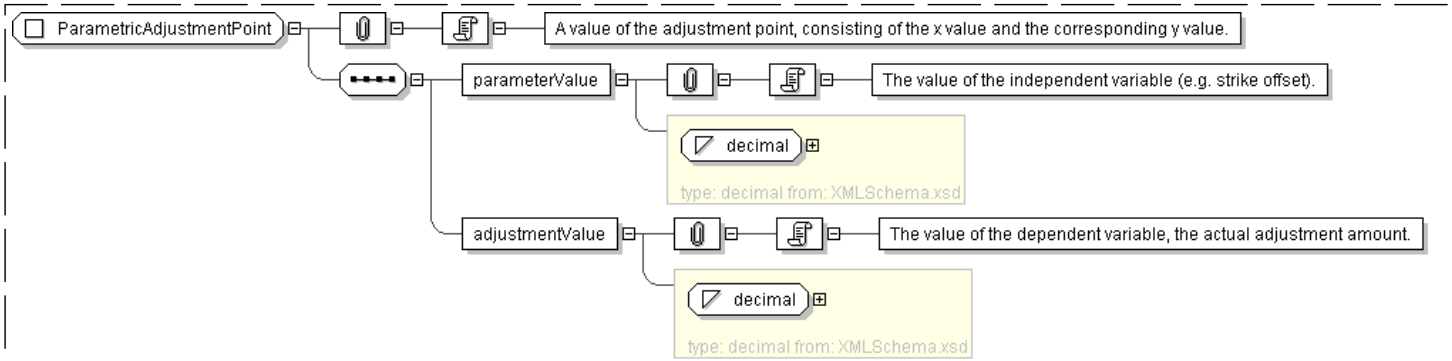
Super-types:	None
Sub-types:	None

Name	ParametricAdjustmentPoint
Used by (from the same schema document)	Complex Type **ParametricAdjustment**
Abstract	no
Documentation	A value of the adjustment point, consisting of the x value and the corresponding y value.

XML Instance Representation

```
<...>
   <parameterValue> xsd:decimal </parameterValue> [1]
   'The value of the independent variable (e.g. strike offset).'

   <adjustmentValue> xsd:decimal </adjustmentValue> [1]
   'The value of the dependent variable, the actual adjustment amount.'

</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="ParametricAdjustmentPoint">
   <xsd:sequence>
      <xsd:element name="parameterValue" type=" xsd:decimal "/>
      <xsd:element name="adjustmentValue" type=" xsd:decimal "/>
   </xsd:sequence>
</xsd:complexType>
```

top

Complex Type: PricingStructurePoint

Super-types:	None
Sub-types:	None

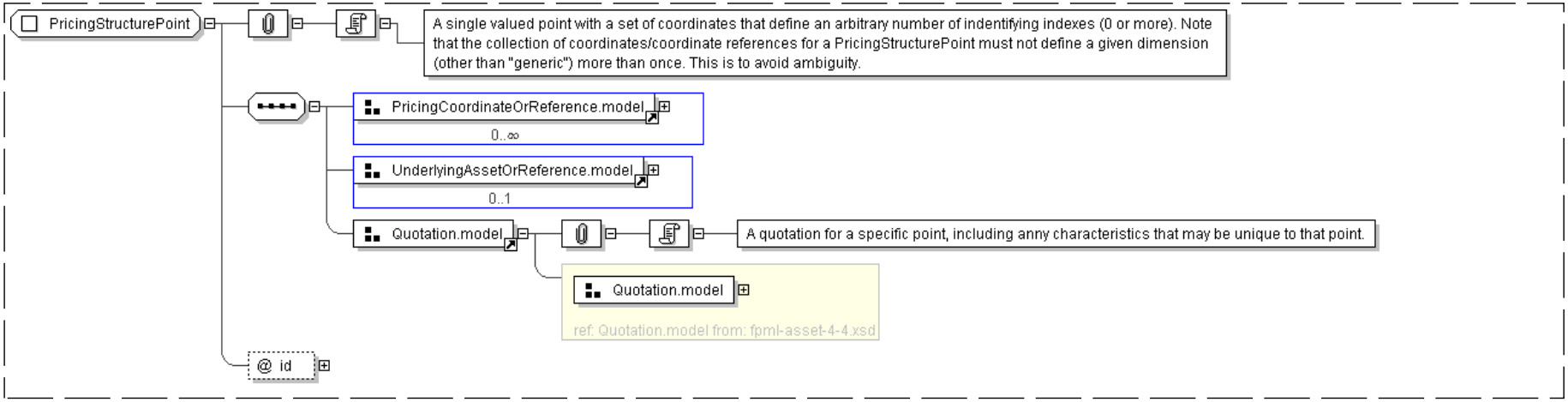
Name	PricingStructurePoint
Used by (from the same schema document)	Complex Type **MultiDimensionalPricingData**
Abstract	no
Documentation	A single valued point with a set of coordinates that define an arbitrary number of indentifying indexes (0 or more). Note that the collection of coordinates/coordinate references for a PricingStructurePoint must not define a given dimension (other than "generic") more than once. This is to avoid ambiguity.

XML Instance Representation

```
<...
id=" xsd:ID [0..1]">
Start Group: PricingCoordinateOrReference.model [0..*]
Start Choice [1]
        <coordinate> PricingDataPointCoordinate </coordinate> [1]
        'An explicit, filled in data point coordinate. This might specify expiration, strike, etc.'

        <coordinateReference> PricingDataPointCoordinateReference </coordinateReference> [1]
        'A reference to a pricing data point coordinate within this document.'

End Choice
End Group: PricingCoordinateOrReference.model
Start Group: UnderlyingAssetOrReference.model [0..1]
Start Choice [1]
        <underlyingAsset> ... </underlyingAsset> [1]
        'An underlying asset that defines the meaning of the value, i.e. the product that the
        value corresponds to. For example, this could be a caplet or simple european swaption.'

        <underlyingAssetReference> AssetReference </underlyingAssetReference> [0..1]
        'A reference to an underlying asset that defines the meaning of the value, i.e. the
        product that the value corresponds to. For example, this could be a caplet or simple
        european swaption.'

End Choice
End Group: UnderlyingAssetOrReference.model
   <value> xsd:decimal </value> [0..1]
   'The value of the the quotation.'

   <measureType> AssetMeasureType </measureType> [0..1]
   'The type of the value that is measured. This could be an NPV, a cash flow, a clean price, etc.'

   <quoteUnits> PriceQuoteUnits </quoteUnits> [0..1]
   'The optional units that the measure is expressed in. If not supplied, this is assumed to be
   a price/value in currency units.'

   <side> QuotationSideEnum </side> [0..1]
   'The side (bid/mid/ask) of the measure.'

   <currency> Currency </currency> [0..1]
   'The optional currency that the measure is expressed in. If not supplied, this is
   defaulted from the reportingCurrency in the valuationScenarioDefinition.'

   <timing> QuoteTiming </timing> [0..1]
   'When during a day the quote is for. Typically, if this element is supplied, the
   QuoteLocation needs also to be supplied.'

Start Group: QuoteLocation.model [0..1]
'Where the quote is from.'
```

```
Start Choice [1]
        <businessCenter> BusinessCenter </businessCenter> [1]
        'A city or other business center.'

        <exchangeId> ExchangeId </exchangeId> [1]
        'The exchange (e.g. stock or futures exchange) from which the quote is obtained.'

End Choice
End Group: QuoteLocation.model
   <informationSource> InformationSource </informationSource> [0..*]
   'The information source where a published or displayed market rate will be obtained, e.
   g. Telerate Page 3750.'

   <time> xsd:dateTime </time> [0..1]
   'When the quote was observed or derived.'

   <valuationDate> xsd:date </valuationDate> [0..1]
   'When the quote was computed.'

   <expiryTime> xsd:dateTime </expiryTime> [0..1]
   'When does the quote cease to be valid.'

   <cashFlowType> CashflowType </cashFlowType> [0..1]
   'For cash flows, the type of the cash flows. Examples include: Coupon payment, Premium
   Fee, Settlement Fee, Brokerage Fee, etc.'

</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="PricingStructurePoint">
   <xsd:sequence>
      <xsd:group ref=" PricingCoordinateOrReference.model " minOccurs="0" maxOccurs="unbounded"/>
      <xsd:group ref=" UnderlyingAssetOrReference.model " minOccurs="0"/>
      <xsd:group ref=" Quotation.model "/>
   </xsd:sequence>
   <xsd:attribute name="id" type=" xsd:ID "/>
</xsd:complexType>
```

top

Complex Type: TermCurve

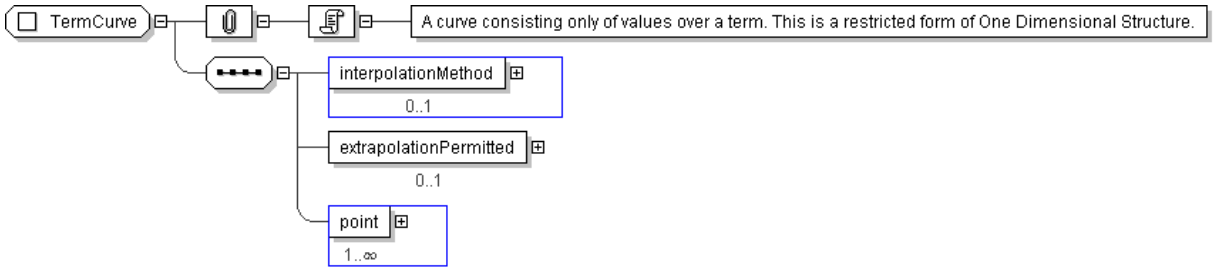
Super-types:	None
Sub-types:	None

Name	TermCurve
Used by (from the same schema document)	Complex Type **DefaultProbabilityCurve** , Complex Type **ForwardRateCurve** , Complex Type **FxCurveValuation** , Complex Type **FxCurveValuation** , Complex Type **YieldCurveValuation** , Complex Type **ZeroRateCurve** , Model Group **RecoveryRate.model**
Abstract	no
Documentation	A curve consisting only of values over a term. This is a restricted form of One Dimensional Structure.

XML Instance Representation

```
<...>
   <interpolationMethod> InterpolationMethod </interpolationMethod> [0..1]
   <extrapolationPermitted> xsd:boolean </extrapolationPermitted> [0..1]
   <point> TermPoint </point> [1..*]
</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="TermCurve">
   <xsd:sequence>
      <xsd:element name="interpolationMethod" type=" InterpolationMethod " minOccurs="0"/>
      <xsd:element name="extrapolationPermitted" type=" xsd:boolean " minOccurs="0"/>
      <xsd:element name="point" type=" TermPoint " maxOccurs="unbounded"/>
   </xsd:sequence>
</xsd:complexType>
```

top

Complex Type: TermPoint

Super-types:	None
Sub-types:	None

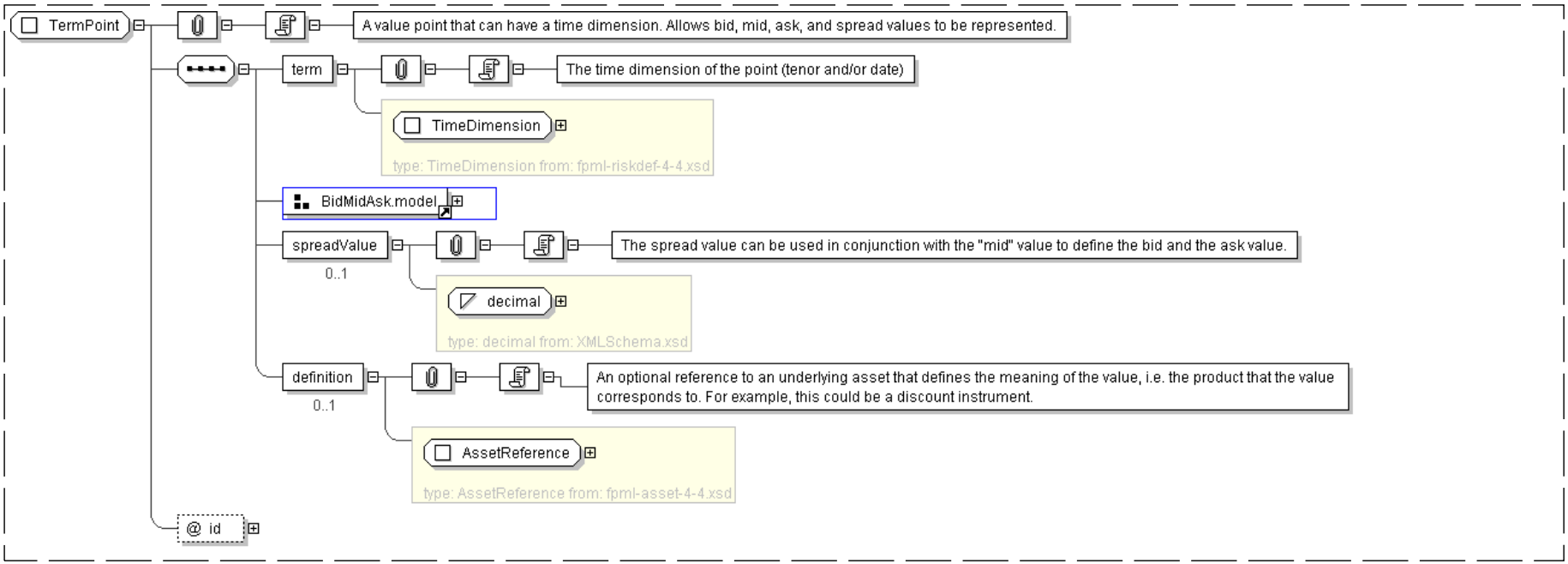
Name	TermPoint
Used by (from the same schema document)	Complex Type **TermCurve**
Abstract	no
Documentation	A value point that can have a time dimension. Allows bid, mid, ask, and spread values to be represented.

XML Instance Representation

```
<...
id=" xsd:ID [0..1]">
   <term> TimeDimension </term> [1]
   'The time dimension of the point (tenor and/or date)'
```

```
<bid> xsd:decimal </bid> [0..1]
'A price \"bid\" by a buyer for an asset, i.e. the price a buyer is willing to pay.'

<mid> xsd:decimal </mid> [0..1]
'A price midway between the bid and the ask price.'

<ask> xsd:decimal </ask> [0..1]
'A price \"asked\" by a seller for an asset, i.e. the price at which a seller is willing
to sell.'

<spreadValue> xsd:decimal </spreadValue> [0..1]
'The spread value can be used in conjunction with the \"mid\" value to define the bid and
the ask value.'

<definition> AssetReference </definition> [0..1]
'An optional reference to an underlying asset that defines the meaning of the value, i.e.
the product that the value corresponds to. For example, this could be a discount instrument.'

</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="TermPoint">
   <xsd:sequence>
      <xsd:element name="term" type=" TimeDimension "/>
      <xsd:group ref=" BidMidAsk.model "/>
      <xsd:element name="spreadValue" type=" xsd:decimal " minOccurs="0"/>
      <xsd:element name="definition" type=" AssetReference " minOccurs="0"/>
   </xsd:sequence>
   <xsd:attribute name="id" type=" xsd:ID "/>
</xsd:complexType>
```

top

Complex Type: VolatilityMatrix

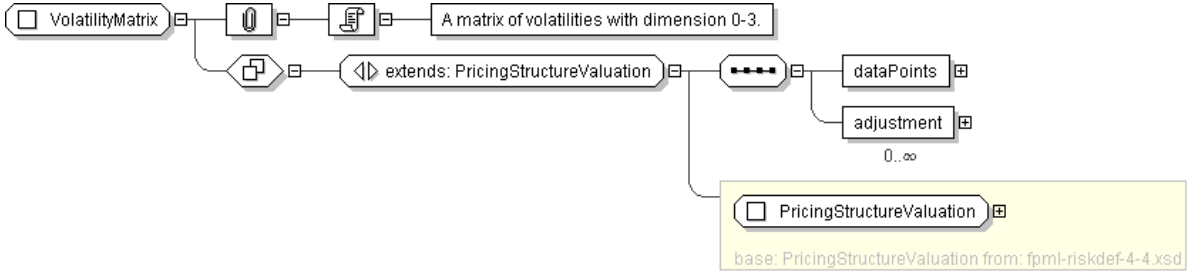
Super-types:	PricingStructureValuation < **VolatilityMatrix** (by extension)
Sub-types:	None

Name	VolatilityMatrix
Used by (from the same schema document)	Element **volatilityMatrixValuation**
Abstract	no
Documentation	A matrix of volatilities with dimension 0-3.

XML Instance Representation

```
<...
id=" xsd:ID [0..1]"
definitionRef=" xsd:IDREF [0..1]
 'An optional reference to the scenario that this valuation applies to.'

">
   <objectReference> AnyAssetReference </objectReference> [0..1]
    'A reference to the asset or pricing structure that this values.'

   <valuationScenarioReference> ValuationScenarioReference </valuationScenarioReference> [0..1]
    'A reference to the valuation scenario used to calculate this valuation. If the
    Valuation occurs within a ValuationSet, this value is optional and is defaulted from
    the ValuationSet. If this value occurs in both places, the lower level value (i.e. the
    one here) overrides that in the higher (i.e. ValuationSet).'

   <baseDate> IdentifiedDate </baseDate> [1]
    'The base date for which the structure applies, i.e. the curve date. Normally this will
    align with the valuation date.'

   <spotDate> IdentifiedDate </spotDate> [0..1]
    'The spot settlement date for which the structure applies, normally 0-2 days after the
    base date. The difference between the baseDate and the spotDate is termed the settlement
    lag, and is sometimes called \"days to spot\".'

   <inputDataDate> IdentifiedDate </inputDataDate> [0..1]
    'The date from which the input data used to construct the pricing input was obtained. Often
    the same as the baseDate, but sometimes the pricing input may be \"rolled forward\", in
    which input data from one date is used to generate a curve for a later date.'

   <endDate> IdentifiedDate </endDate> [0..1]
    'The last date for which data is supplied in this pricing input.'

   <buildDateTime> xsd:dateTime </buildDateTime> [0..1]
    'The date and time when the pricing input was generated.'

   <dataPoints> MultiDimensionalPricingData </dataPoints> [1]
    'The raw volatility matrix data, expressed as a multi-dimensional array.'

   <adjustment> ParametricAdjustment </adjustment> [0..*]
    'An adjustment factor, such as for vol smile/skew.'

</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="VolatilityMatrix">
   <xsd:complexContent>
      <xsd:extension base=" PricingStructureValuation ">
         <xsd:sequence>
            <xsd:element name="dataPoints" type=" MultiDimensionalPricingData "/>
            <xsd:element name="adjustment" type=" ParametricAdjustment "
            minOccurs="0" maxOccurs="unbounded"/>
         </xsd:sequence>
      </xsd:extension>
   </xsd:complexContent>
</xsd:complexType>
```

top

Complex Type: VolatilityRepresentation

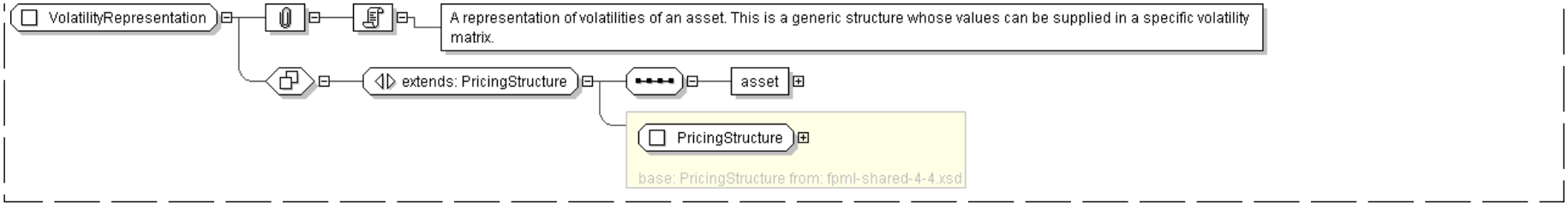
Super-types:	PricingStructure < **VolatilityRepresentation** (by extension)
Sub-types:	None

Name	VolatilityRepresentation
Used by (from the same schema document)	Element **volatilityRepresentation**
Abstract	no
Documentation	A representation of volatilities of an asset. This is a generic structure whose values can be supplied in a specific volatility matrix.

XML Instance Representation

```
<...
id=" xsd:ID [0..1]">
   <name> xsd:normalizedString </name> [0..1]
   'The name of the structure, e.g \"USDLIBOR-3M EOD Curve\".'

   <currency> Currency </currency> [0..1]
   'The currency that the structure is expressed in (this is relevant mostly for the Interes
   Rates asset class).'

   <asset> AnyAssetReference </asset> [1]
   'A reference to the asset whose volatility is modeled.'

</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="VolatilityRepresentation">
   <xsd:complexContent>
      <xsd:extension base=" PricingStructure ">
         <xsd:sequence>
            <xsd:element name="asset" type=" AnyAssetReference "/>
         </xsd:sequence>
      </xsd:extension>
   </xsd:complexContent>
</xsd:complexType>
```

top

Complex Type: YieldCurve

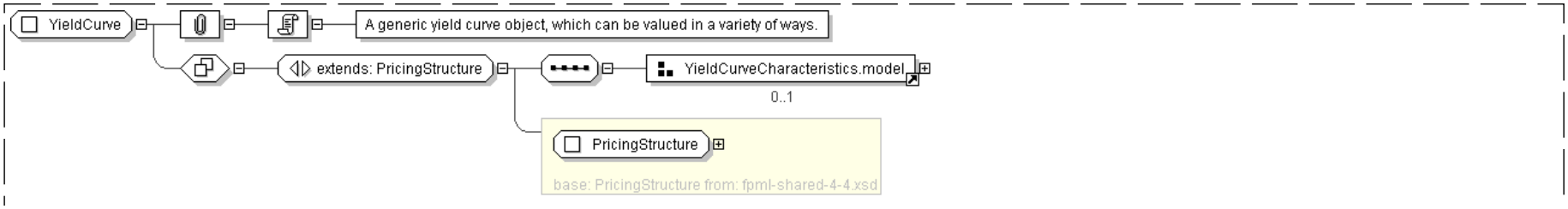
Super-types:	PricingStructure < **YieldCurve** (by extension)
Sub-types:	None

Name	YieldCurve
Used by (from the same schema document)	Element **yieldCurve**
Abstract	no
Documentation	A generic yield curve object, which can be valued in a variety of ways.

XML Instance Representation

```
<...
id=" xsd:ID [0..1]">
   <name> xsd:normalizedString </name> [0..1]
   'The name of the structure, e.g \"USDLIBOR-3M EOD Curve\".'

   <currency> Currency </currency> [0..1]
   'The currency that the structure is expressed in (this is relevant mostly for the Interes
   Rates asset class).'

Start Group: YieldCurveCharacteristics.model [0..1]
      <algorithm> xsd:string </algorithm> [0..1]
      <forecastRateIndex> ForecastRateIndex </forecastRateIndex> [0..1]
End Group: YieldCurveCharacteristics.model
</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="YieldCurve">
   <xsd:complexContent>
      <xsd:extension base=" PricingStructure ">
         <xsd:sequence>
            <xsd:group ref=" YieldCurveCharacteristics.model " minOccurs="0"/>
         </xsd:sequence>
      </xsd:extension>
   </xsd:complexContent>
</xsd:complexType>
```

top

Complex Type: YieldCurveValuation

Super-types:	PricingStructureValuation < **YieldCurveValuation** (by extension)
Sub-types:	None

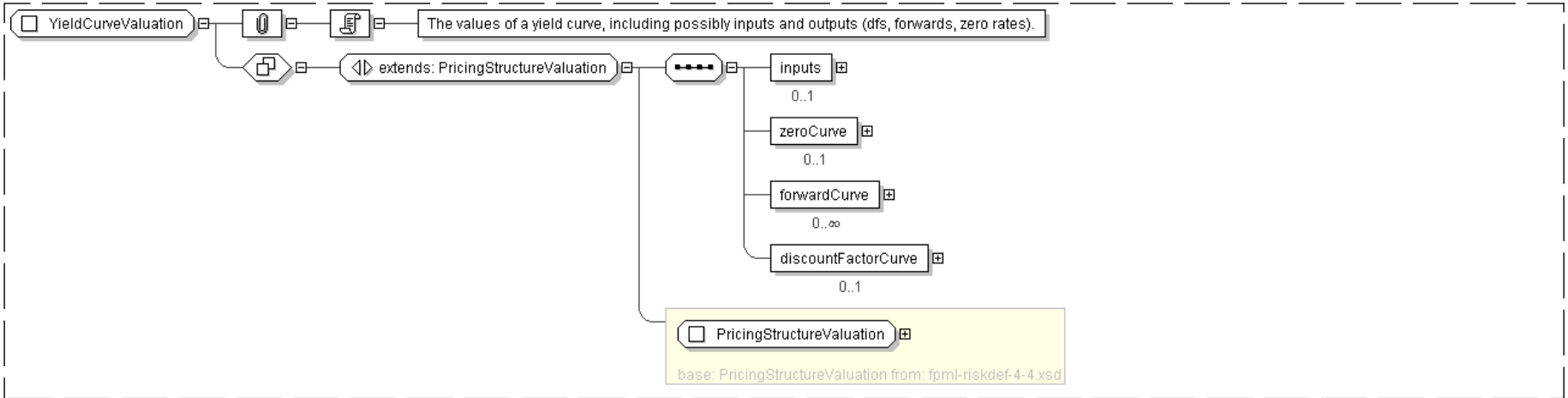
Name	YieldCurveValuation
Used by (from the same schema document)	Element **yieldCurveValuation**
Abstract	no
Documentation	The values of a yield curve, including possibly inputs and outputs (dfs, forwards, zero rates).

XML Instance Representation

```
<...
id=" xsd:ID [0..1]"
definitionRef=" xsd:IDREF [0..1]
 'An optional reference to the scenario that this valuation applies to.'

">
   <objectReference> AnyAssetReference </objectReference> [0..1]
    'A reference to the asset or pricing structure that this values.'

   <valuationScenarioReference> ValuationScenarioReference </valuationScenarioReference> [0..1]
    'A reference to the valuation scenario used to calculate this valuation. If the
    Valuation occurs within a ValuationSet, this value is optional and is defaulted from
    the ValuationSet. If this value occurs in both places, the lower level value (i.e. the
    one here) overrides that in the higher (i.e. ValuationSet).'

   <baseDate> IdentifiedDate </baseDate> [1]
    'The base date for which the structure applies, i.e. the curve date. Normally this will
    align with the valuation date.'

   <spotDate> IdentifiedDate </spotDate> [0..1]
    'The spot settlement date for which the structure applies, normally 0-2 days after the
    base date. The difference between the baseDate and the spotDate is termed the settlement
    lag, and is sometimes called \"days to spot\".'

   <inputDataDate> IdentifiedDate </inputDataDate> [0..1]
    'The date from which the input data used to construct the pricing input was obtained. Often
    the same as the baseDate, but sometimes the pricing input may be \"rolled forward\", in
    which input data from one date is used to generate a curve for a later date.'

   <endDate> IdentifiedDate </endDate> [0..1]
    'The last date for which data is supplied in this pricing input.'

   <buildDateTime> xsd:dateTime </buildDateTime> [0..1]
    'The date and time when the pricing input was generated.'
```

```
<inputs> QuotedAssetSet </inputs> [0..1]
<zeroCurve> ZeroRateCurve </zeroCurve> [0..1]
'A curve of zero rates.'

<forwardCurve> ForwardRateCurve </forwardCurve> [0..*]
'A curve of forward rates.'

<discountFactorCurve> TermCurve </discountFactorCurve> [0..1]
'A curve of discount factors.'

</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="YieldCurveValuation">
   <xsd:complexContent>
      <xsd:extension base=" PricingStructureValuation ">
         <xsd:sequence>
            <xsd:element name="inputs" type=" QuotedAssetSet " minOccurs="0"/>
            <xsd:element name="zeroCurve" type=" ZeroRateCurve " minOccurs="0"/>
            <xsd:element name="forwardCurve" type=" ForwardRateCurve " minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element name="discountFactorCurve" type=" TermCurve " minOccurs="0"/>
         </xsd:sequence>
      </xsd:extension>
   </xsd:complexContent>
</xsd:complexType>
```

top

Complex Type: ZeroRateCurve

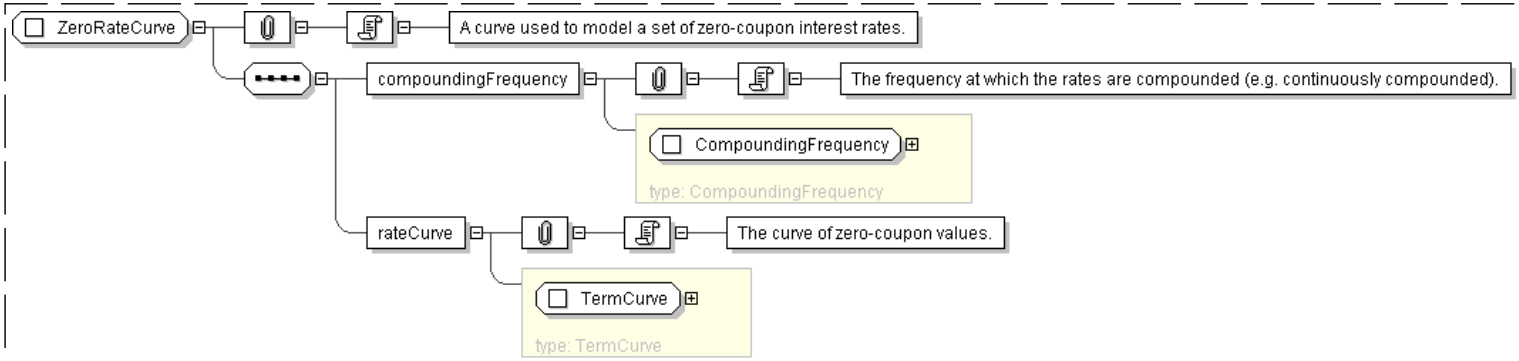
Super-types:	None
Sub-types:	None

Name	ZeroRateCurve
Used by (from the same schema document)	Complex Type **YieldCurveValuation**
Abstract	no
Documentation	A curve used to model a set of zero-coupon interest rates.

XML Instance Representation

```
<...>
   <compoundingFrequency> CompoundingFrequency </compoundingFrequency> [1]
   'The frequency at which the rates are compounded (e.g. continuously compounded).'

   <rateCurve> TermCurve </rateCurve> [1]
   'The curve of zero-coupon values.'

</...>
```

Diagram



Schema Component Representation

```
<xsd:complexType name="ZeroRateCurve">
   <xsd:sequence>
      <xsd:element name="compoundingFrequency" type=" CompoundingFrequency "/>
      <xsd:element name="rateCurve" type=" TermCurve "/>
   </xsd:sequence>
</xsd:complexType>
```

top

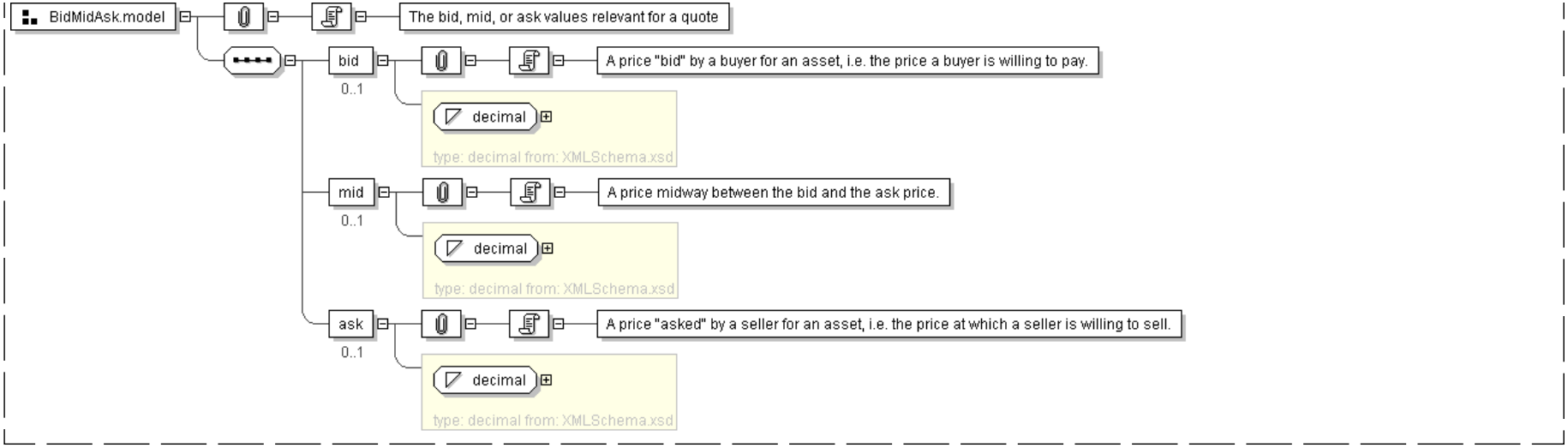
Model Group: BidMidAsk.model

Name	BidMidAsk.model
Used by (from the same schema document)	Complex Type **TermPoint**
Documentation	The bid, mid, or ask values relevant for a quote

XML Instance Representation

```
<bid> xsd:decimal </bid> [0..1]
'A price \"bid\" by a buyer for an asset, i.e. the price a buyer is willing to pay.'

<mid> xsd:decimal </mid> [0..1]
'A price midway between the bid and the ask price.'

<ask> xsd:decimal </ask> [0..1]
'A price \"asked\" by a seller for an asset, i.e. the price at which a seller is willing
to sell.'
```

Diagram



Schema Component Representation

```
<xsd:group name="BidMidAsk.model">
   <xsd:sequence>
      <xsd:element name="bid" type=" xsd:decimal " minOccurs="0"/>
      <xsd:element name="mid" type=" xsd:decimal " minOccurs="0"/>
      <xsd:element name="ask" type=" xsd:decimal " minOccurs="0"/>
   </xsd:sequence>
</xsd:group>
```

top

Model Group: CreditCurveCharacteristics.model

Name	CreditCurveCharacteristics.model
Used by (from the same schema document)	Complex Type **CreditCurve**
Documentation	The set of characterstics that describe the outputs of a credit curve.

XML Instance Representation

```
Start Choice [1]
   <referenceEntity> LegalEntity </referenceEntity> [1]
   'The entity for which this is defined.'

   <creditEntityReference> LegalEntityReference </creditEntityReference> [1]
   'An XML reference a credit entity defined elsewhere in the document.'

End Choice
<creditEvents> CreditEvents </creditEvents> [0..1]
'The material credit event.'

<seniority> CreditSeniority </seniority> [1]
'The level of seniority of the deliverable obligation.'

<secured> xsd:boolean </secured> [1]
'Whether the deliverable obligation is secured or unsecured.'

<currency> Currency </currency> [1]
'The currency of denomination of the deliverable obligation.'
```

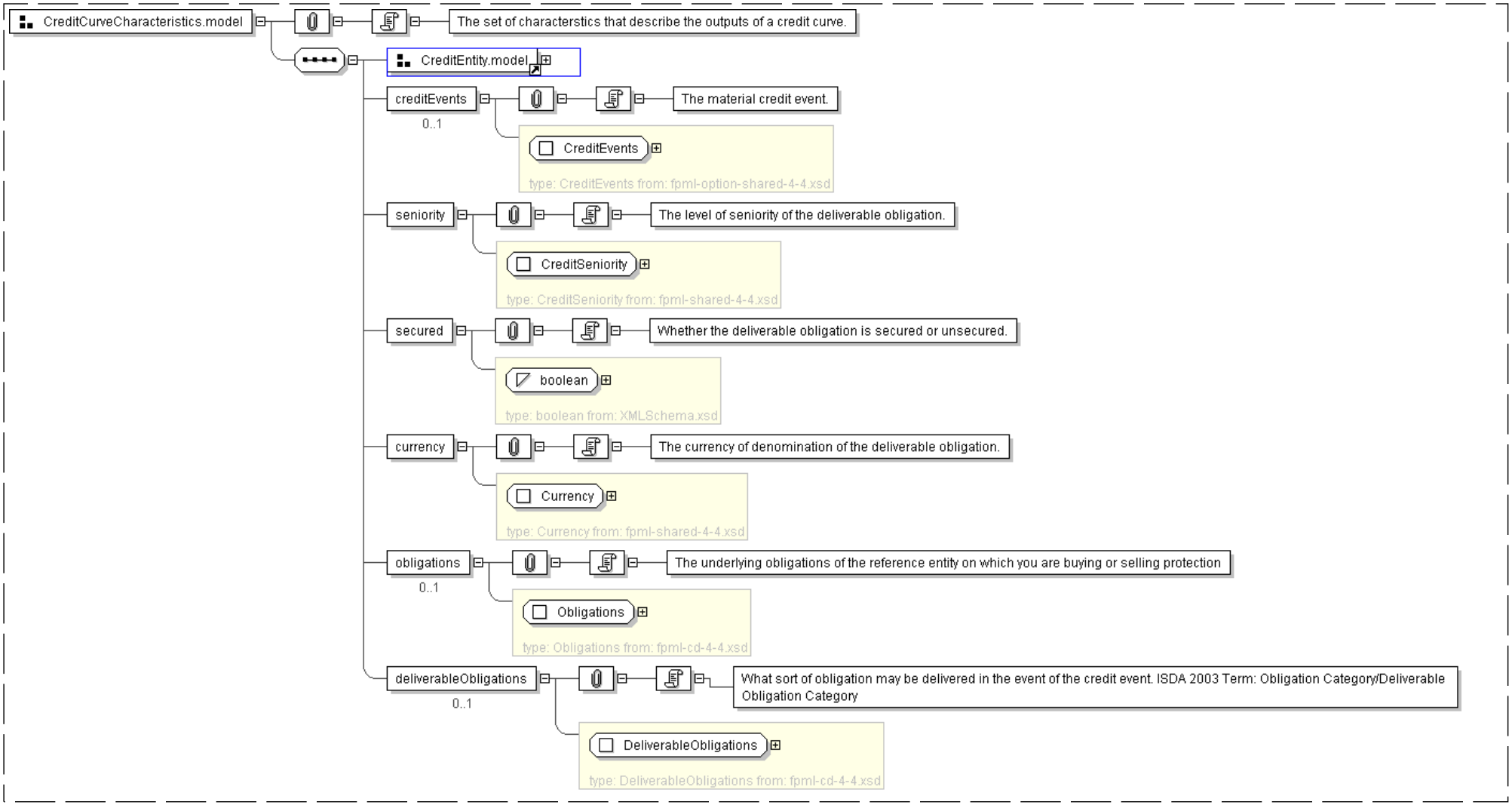
<obligations> Obligations </obligations> [0..1]

'The underlying obligations of the reference entity on which you are buying or selling protection'

<deliverableObligations> DeliverableObligations </deliverableObligations> [0..1]

'What sort of obligation may be delivered in the event of the credit event. ISDA 2003 Term: Obligation Category/Deliverable Obligation Category'

Diagram



Schema Component Representation

```
<xsd:group name="CreditCurveCharacteristics.model">
   <xsd:sequence>
      <xsd:group ref=" CreditEntity.model "/>
      <xsd:element name="creditEvents" type=" CreditEvents " minOccurs="0"/>
      <xsd:element name="seniority" type=" CreditSeniority "/>
      <xsd:element name="secured" type=" xsd:boolean "/>
      <xsd:element name="currency" type=" Currency "/>
```

```
      <xsd:element name="obligations" type=" Obligations " minOccurs="0"/>
      <xsd:element name="deliverableObligations" type=" DeliverableObligations " minOccurs="0"/>
   </xsd:sequence>
</xsd:group>
```

top

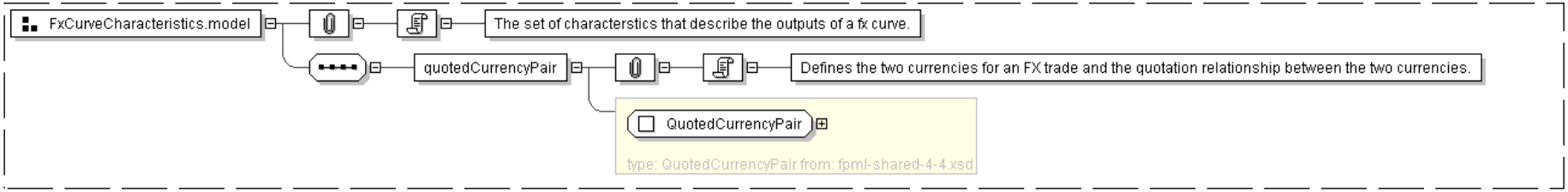
Model Group: FxCurveCharacteristics.model

Name	FxCurveCharacteristics.model
Used by (from the same schema document)	Complex Type **FxCurve**
Documentation	The set of characterstics that describe the outputs of a fx curve.

XML Instance Representation

```
<quotedCurrencyPair> QuotedCurrencyPair </quotedCurrencyPair> [1]
'Defines the two currencies for an FX trade and the quotation relationship between the
two currencies.'
```

Diagram



Schema Component Representation

```
<xsd:group name="FxCurveCharacteristics.model">
   <xsd:sequence>
      <xsd:element name="quotedCurrencyPair" type=" QuotedCurrencyPair "/>
   </xsd:sequence>
</xsd:group>
```

top

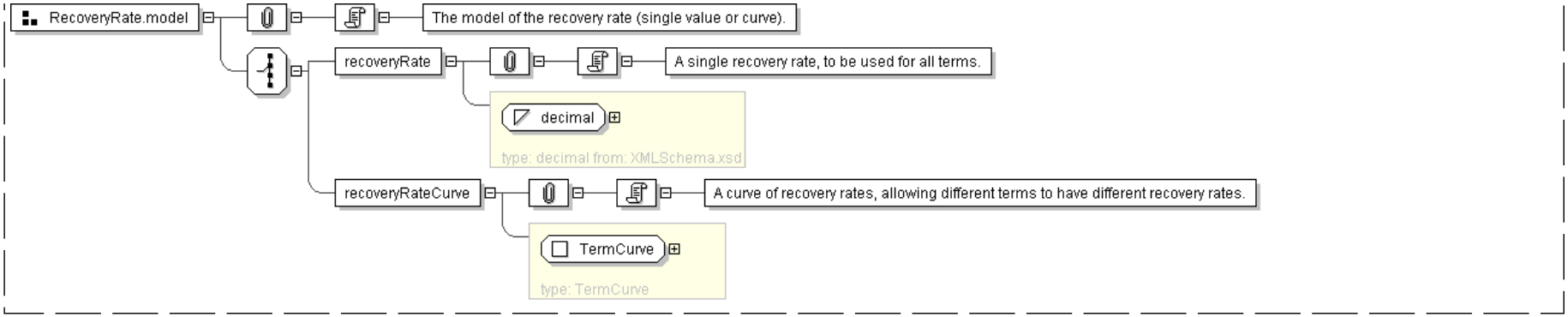
Model Group: RecoveryRate.model

Name	RecoveryRate.model
Used by (from the same schema document)	Complex Type **CreditCurveValuation**
Documentation	The model of the recovery rate (single value or curve).

XML Instance Representation

```
Start Choice [1]
   <recoveryRate> xsd:decimal </recoveryRate> [1]
   'A single recovery rate, to be used for all terms.'

   <recoveryRateCurve> TermCurve </recoveryRateCurve> [1]
   'A curve of recovery rates, allowing different terms to have different recovery rates.'

End Choice
```

Diagram



Schema Component Representation

```
<xsd:group name="RecoveryRate.model">
   <xsd:choice>
      <xsd:element name="recoveryRate" type=" xsd:decimal "/>
      <xsd:element name="recoveryRateCurve" type=" TermCurve "/>
   </xsd:choice>
</xsd:group>
```

top

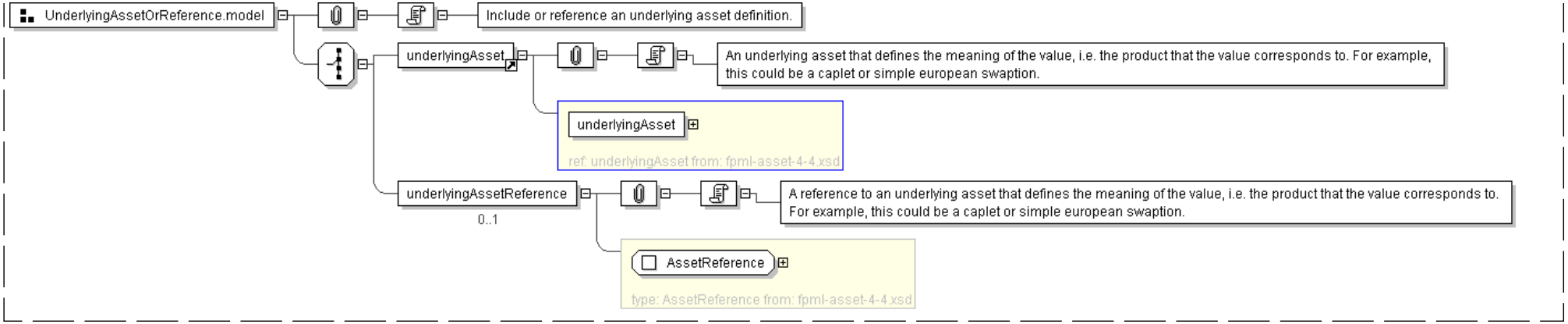
Model Group: UnderlyingAssetOrReference.model

Name	UnderlyingAssetOrReference.model
Used by (from the same schema document)	Complex Type **PricingStructurePoint**
Documentation	Include or reference an underlying asset definition.

XML Instance Representation

```
Start Choice [1]
   <underlyingAsset> ... </underlyingAsset> [1]
   'An underlying asset that defines the meaning of the value, i.e. the product that the
   value corresponds to. For example, this could be a caplet or simple european swaption.'

   <underlyingAssetReference> AssetReference </underlyingAssetReference> [0..1]
   'A reference to an underlying asset that defines the meaning of the value, i.e. the
   product that the value corresponds to. For example, this could be a caplet or simple
   european swaption.'

End Choice
```

Diagram



Schema Component Representation

```
<xsd:group name="UnderlyingAssetOrReference.model">
   <xsd:choice>
      <xsd:element ref=" underlyingAsset "/>
      <xsd:element name="underlyingAssetReference" type=" AssetReference " minOccurs="0"/>
   </xsd:choice>
</xsd:group>
```

top

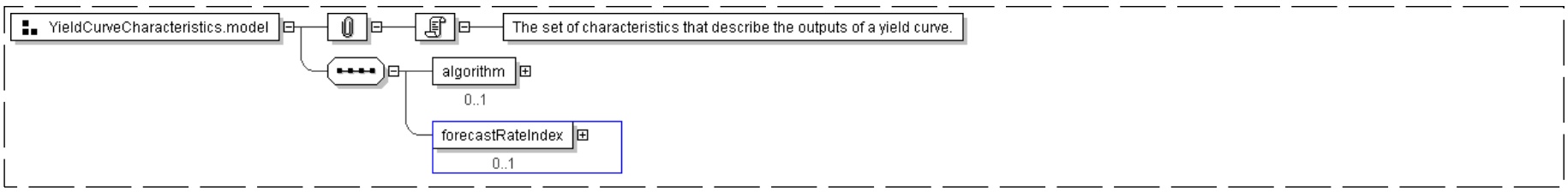
Model Group: YieldCurveCharacteristics.model

Name	YieldCurveCharacteristics.model
Used by (from the same schema document)	Complex Type **YieldCurve**
Documentation	The set of characteristics that describe the outputs of a yield curve.

XML Instance Representation

```
<algorithm> xsd:string </algorithm> [0..1]
<forecastRateIndex> ForecastRateIndex </forecastRateIndex> [0..1]
```

Diagram



Schema Component Representation

```
<xsd:group name="YieldCurveCharacteristics.model">
   <xsd:sequence>
      <xsd:element name="algorithm" type=" xsd:string " minOccurs="0"/>
      <xsd:element name="forecastRateIndex" type=" ForecastRateIndex " minOccurs="0"/>
   </xsd:sequence>
</xsd:group>
```

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Legend

Complex Type: **AusAddress**
Schema Component Type — Schema Component Name

Super-types:	Address < AusAddress (by extension)
Sub-types:	• QLDAddress (by restriction)

If this schema component is a type definition, its type hierarchy is shown in a gray-bordered box.

Name	AusAddress
Abstract	no

The table above displays the properties of this schema component.

XML Instance Representation

```
<... country="Australia" >
<unitNo> string </unitNo> [0..1]
<houseNo> string </houseNo> [1]
<street> string </street> [1]
Start Choice [1]
<city> string </city> [1]
<town> string </town> [1]
End Choice
<state> AusStates </state> [1]
<postcode> string <<pattern = [1-9][0-9]{3}>> </postcode> [1]
</...>
```

The XML Instance Representation table above shows the schema component's content as an XML instance.

- The minimum and maximum occurrence of elements and attributes are provided in square brackets, e.g. [0..1].
- Model group information are shown in gray, e.g. Start Choice ... End Choice.
- For type derivations, the elements and attributes that have been added to or changed from the base type's content are shown in **bold**.
- If an element/attribute has a fixed value, the fixed value is shown in green, e.g. country="Australia".
- Otherwise, the type of the element/attribute is displayed.
  - If the element/attribute's type is in the schema, a link is provided to it.
  - For local simple type definitions, the constraints are displayed in angle brackets, e.g. <<*pattern* = [1-9][0-9]{3}>>.

Schema Component Representation

```
<complexType name="AusAddress">
<complexContent>
<extension base=" Address ">
<sequence>
<element name="state" type=" AusStates "/>
<element name="postcode">
<simpleType>
<restriction base=" string ">
<pattern value="[1-9][0-9]{3}"/>
</restriction>
</simpleType>
</element>
</sequence>
<attribute name="country" type=" string " fixed="Australia"/>
</extension>
</complexContent>
</complexType>
```

The Schema Component Representation table above displays the underlying XML representation of the schema component. (Annotations are not shown.)

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Glossary

Abstract (Applies to complex type definitions and element declarations). An abstract element or complex type cannot used to validate an element instance. If there is a reference to an abstract element, only element declarations that can substitute the abstract element can be used to validate the instance. For references to abstract type definitions, only derived types can be used.

All Model Group Child elements can be provided *in any order* in instances. See: http://www.w3.org/TR/xmlschema-1/#element-all.

Choice Model Group *Only one* from the list of child elements and model groups can be provided in instances. See: http://www.w3.org/TR/xmlschema-1/#element-choice.

Collapse Whitespace Policy Replace tab, line feed, and carriage return characters with space character (Unicode character 32). Then, collapse contiguous sequences of space characters into single space character, and remove leading and trailing space characters.

Disallowed Substitutions (Applies to element declarations). If *substitution* is specified, then substitution group members cannot be used in place of the given element declaration to validate element instances. If *derivation methods*, e.g. extension, restriction, are specified, then the given element declaration will not validate element instances that have types derived from the element declaration's type using the specified derivation methods. Normally, element instances can override their declaration's type by specifying an `xsi:type` attribute.

Key Constraint Like Uniqueness Constraint, but additionally requires that the specified value(s) must be provided. See: http://www.w3.org/TR/xmlschema-1/#cIdentity-constraint_Definitions.

Key Reference Constraint Ensures that the specified value(s) must match value(s) from a Key Constraint or Uniqueness Constraint. See: http://www.w3.org/TR/xmlschema-1/#cIdentity-constraint_Definitions.

Model Group Groups together element content, specifying the order in which the element content can occur and the number of times the group of element content may be repeated. See: http://www.w3.org/TR/xmlschema-1/#Model_Groups.

Nillable (Applies to element declarations). If an element declaration is nillable, instances can use the `xsi:nil` attribute. The `xsi:nil` attribute is the boolean attribute, *nil*, from the *http://www.w3.org/2001/XMLSchema-instance* namespace. If an element instance has an `xsi:nil` attribute set to true, it can be left empty, even though its element declaration may have required content.

Notation A notation is used to identify the format of a piece of data. Values of elements and attributes that are of type, NOTATION, must come from the names of declared notations. See: http://www.w3.org/TR/xmlschema-1/#cNotation_Declarations.

Preserve Whitespace Policy Preserve whitespaces exactly as they appear in instances.

Prohibited Derivations (Applies to type definitions). Derivation methods that cannot be used to create sub-types from a given type definition.

Prohibited Substitutions (Applies to complex type definitions). Prevents sub-types that have been derived using the specified derivation methods from validating element instances in place of the given type definition.

Replace Whitespace Policy Replace tab, line feed, and carriage return characters with space character (Unicode character 32).

Sequence Model Group Child elements and model groups must be provided *in the specified order* in instances. See: http://www.w3.org/TR/xmlschema-1/#element-sequence.

Substitution Group Elements that are *members* of a substitution group can be used wherever the *head* element of the substitution group is referenced.

Substitution Group Exclusions (Applies to element declarations). Prohibits element declarations from nominating themselves as being able to substitute a given element declaration, if they have types that are derived from the original element's type using the specified derivation methods.

Target Namespace The target namespace identifies the namespace that components in this schema belongs to. If no target namespace is provided, then the schema components do not belong to any namespace.

Uniqueness Constraint Ensures uniqueness of an element/attribute value, or a combination of values, within a specified scope. See: http://www.w3.org/TR/xmlschema-1/#cIdentity-constraint_Definitions.

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