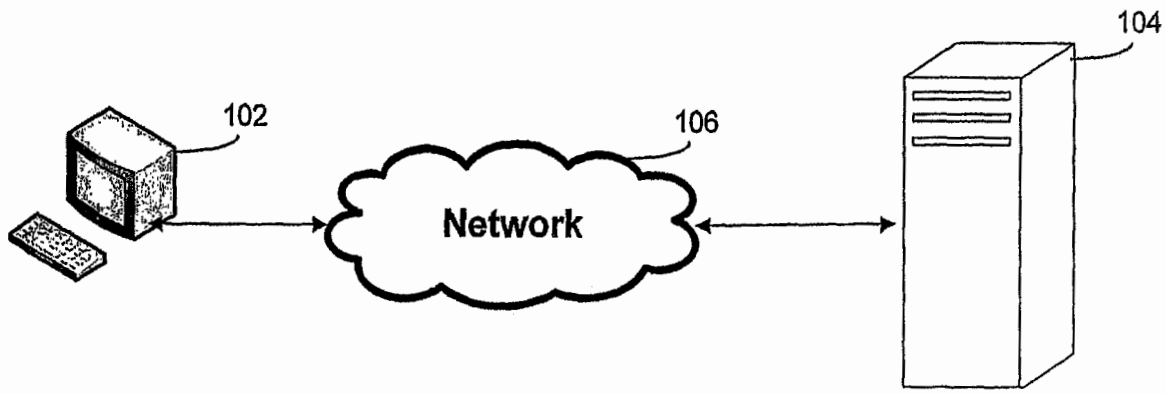

104
102
106
Network

FIG. 1

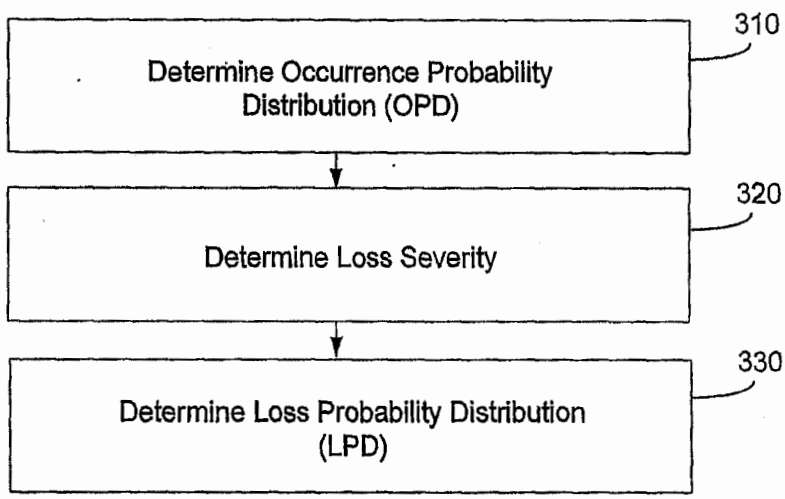

310
Determine Occurrence Probability Distribution (OPD)
320
Determine Loss Severity
330
Determine Loss Probability Distribution (LPD)

FIG. 3

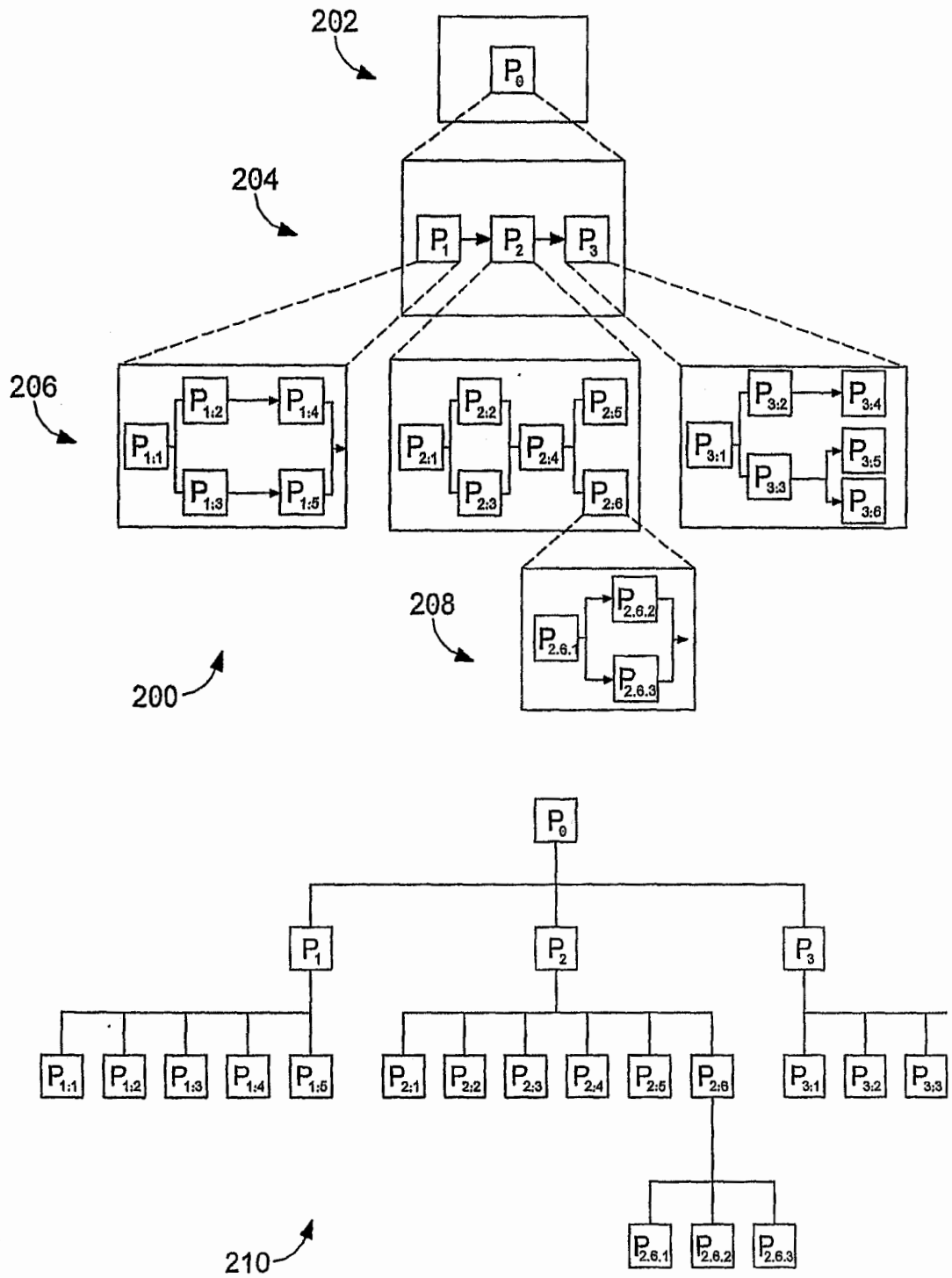

202
204
206
208
200
210
P0
P1
P2
P3
P1:1
P1:2
P1:3
P1:4
P1:5
P2:1
P2:2
P2:3
P2:4
P2:5
P2:6
P3:1
P3:2
P3:3
P3:4
P3:5
P3:6
P2.6.1
P2.6.2
P2.6.3

FIG. 2

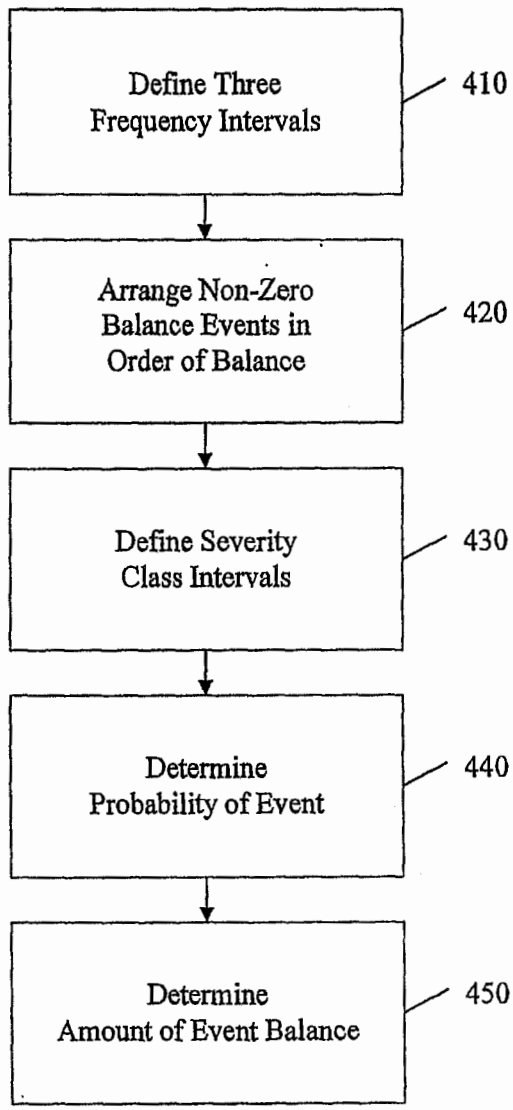

Define Three Frequency Intervals
410
Arrange Non-Zero Balance Events in Order of Balance
420
Define Severity Class Intervals
430
Determine Probability of Event
440
Determine Amount of Event Balance
450

FIG. 4

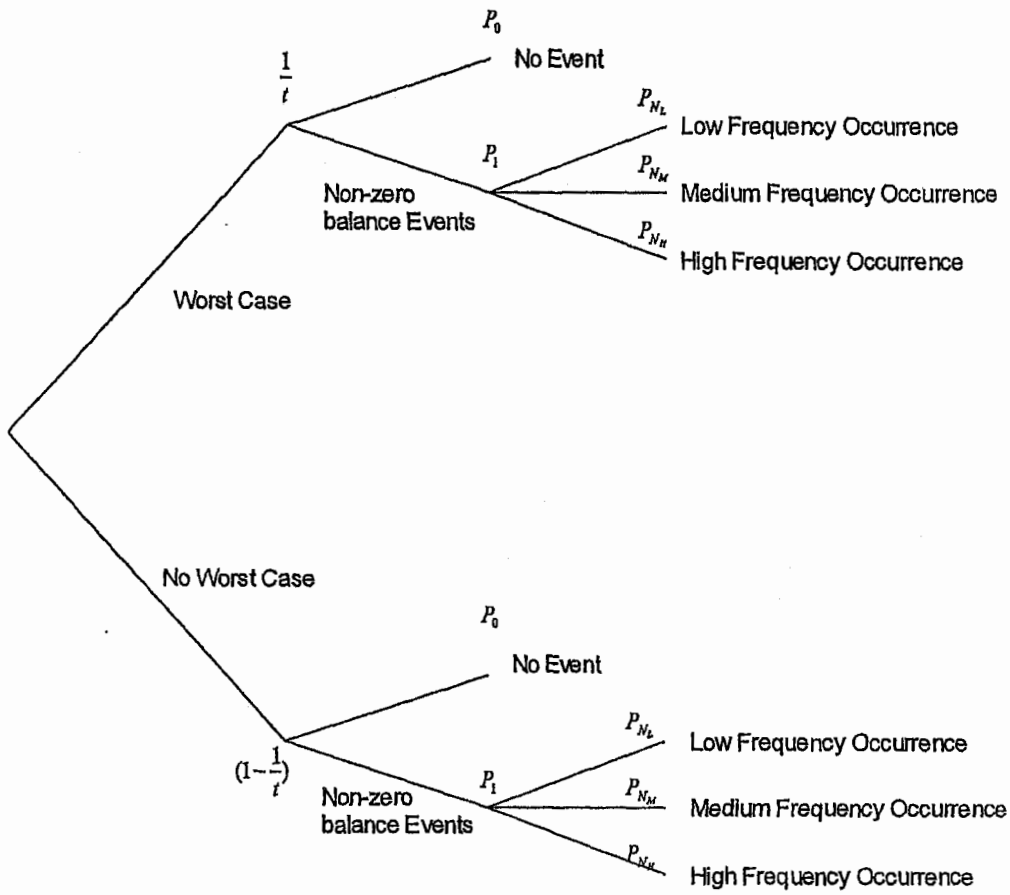

P_0
No Event
$\frac{1}{t}$
P_{N_L}
Low Frequency Occurrence
P_1
P_{N_M}
Medium Frequency Occurrence
Non-zero balance Events
P_{N_H}
High Frequency Occurrence
Worst Case
No Worst Case
P_0
No Event
P_{N_L}
Low Frequency Occurrence
$(1-\frac{1}{t})$
P_1
P_{N_M}
Medium Frequency Occurrence
Non-zero balance Events
P_{N_H}
High Frequency Occurrence

FIG. 5

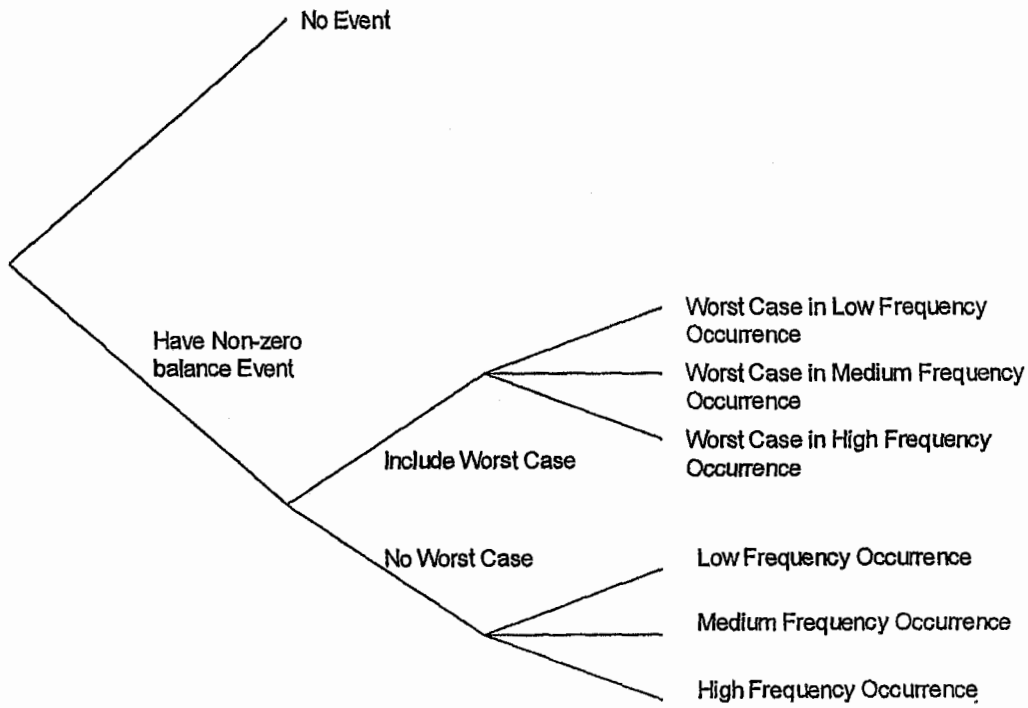

No Event
Have Non-zero balance Event
Include Worst Case
Worst Case in Low Frequency Occurrence
Worst Case in Medium Frequency Occurrence
Worst Case in High Frequency Occurrence
No Worst Case
Low Frequency Occurrence
Medium Frequency Occurrence
High Frequency Occurrence

FIG. 6

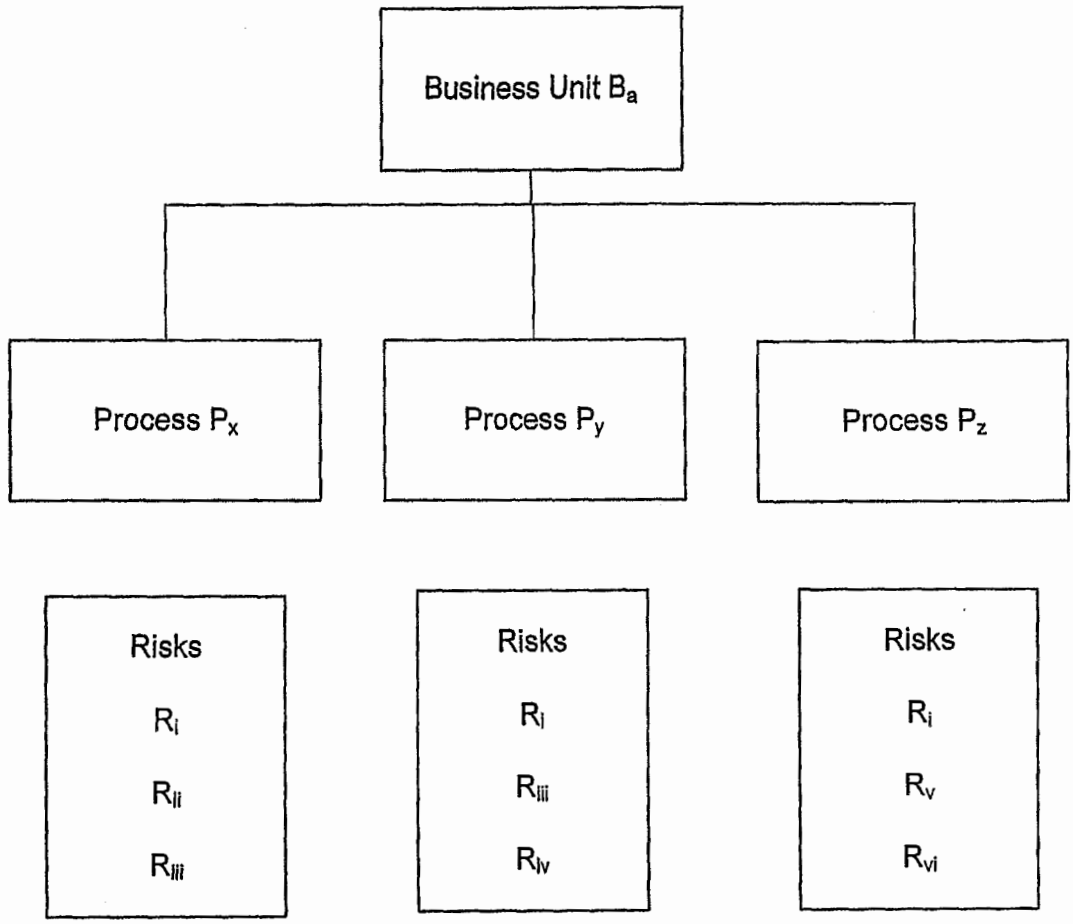

Business Unit B_a
Process P_x
Process P_y
Process P_z
Risks
R_i
R_{ii}
R_{iii}
Risks
R_i
R_{iii}
R_{iv}
Risks
R_i
R_v
R_{vi}

FIG. 7

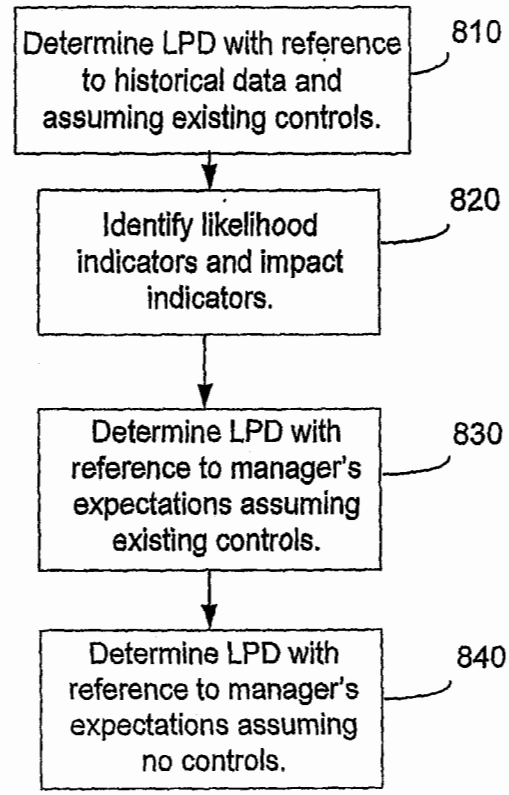

Determine LPD with reference to historical data and assuming existing controls.
810
Identify likelihood indicators and impact indicators.
820
Determine LPD with reference to manager's expectations assuming existing controls.
830
Determine LPD with reference to manager's expectations assuming no controls.
840

FIG. 8

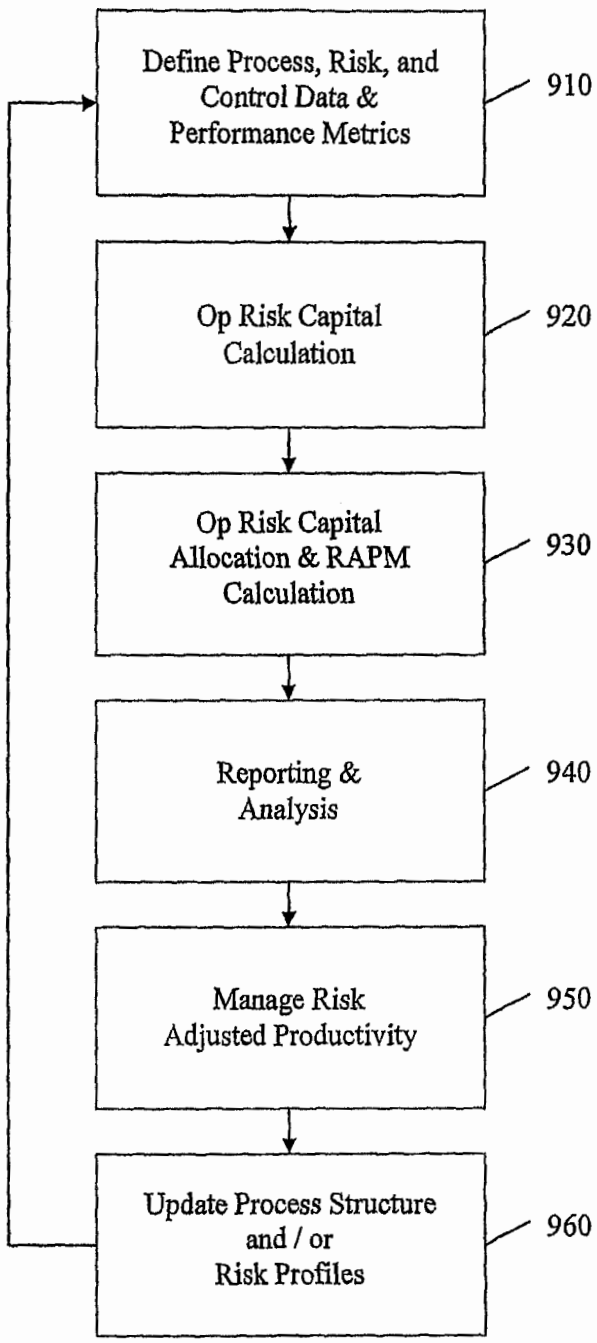

Define Process, Risk, and Control Data & Performance Metrics
910
Op Risk Capital Calculation
920
Op Risk Capital Allocation & RAPM Calculation
930
Reporting & Analysis
940
Manage Risk Adjusted Productivity
950
Update Process Structure and / or Risk Profiles
960

FIG. 9

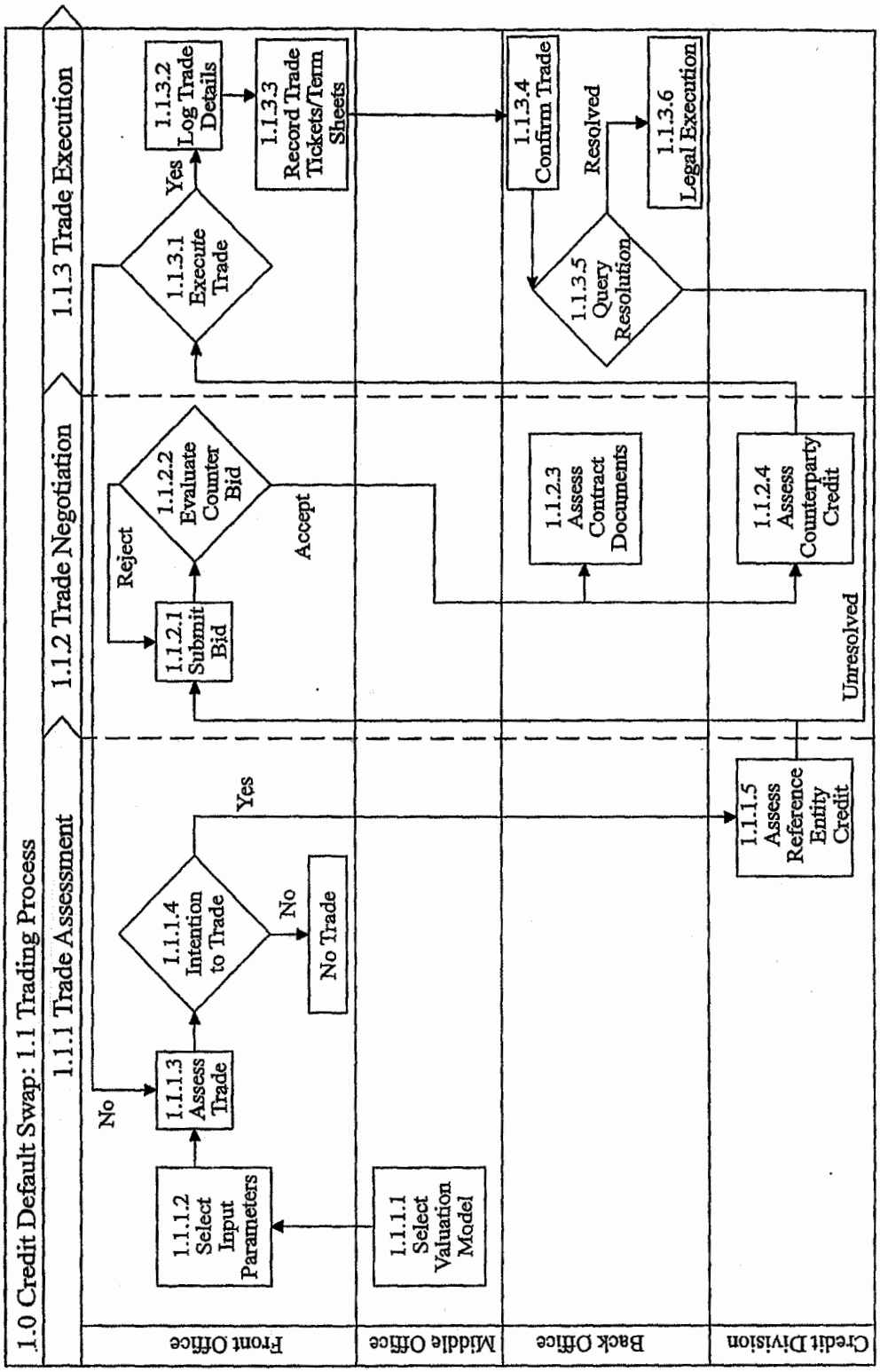

1.0 Credit Default Swap: 1.1 Trading Process
1.1.1 Trade Assessment
1.1.2 Trade Negotiation
1.1.3 Trade Execution
Front Office
Middle Office
Back Office
Credit Division
1.1.1.1 Select Valuation Model
1.1.1.2 Select Input Parameters
1.1.1.3 Assess Trade
1.1.1.4 Intention to Trade
No
Yes
No Trade
1.1.1.5 Assess Reference Entity Credit
1.1.2.1 Submit Bid
1.1.2.2 Evaluate Counter Bid
Reject
Accept
1.1.2.3 Assess Contract Documents
1.1.2.4 Assess Counterparty Credit
Unresolved
1.1.3.1 Execute Trade
Yes
1.1.3.2 Log Trade Details
1.1.3.3 Record Trade Tickets/Term Sheets
1.1.3.4 Confirm Trade
1.1.3.5 Query Resolution
Resolved
1.1.3.6 Legal Execution

FIG. 10

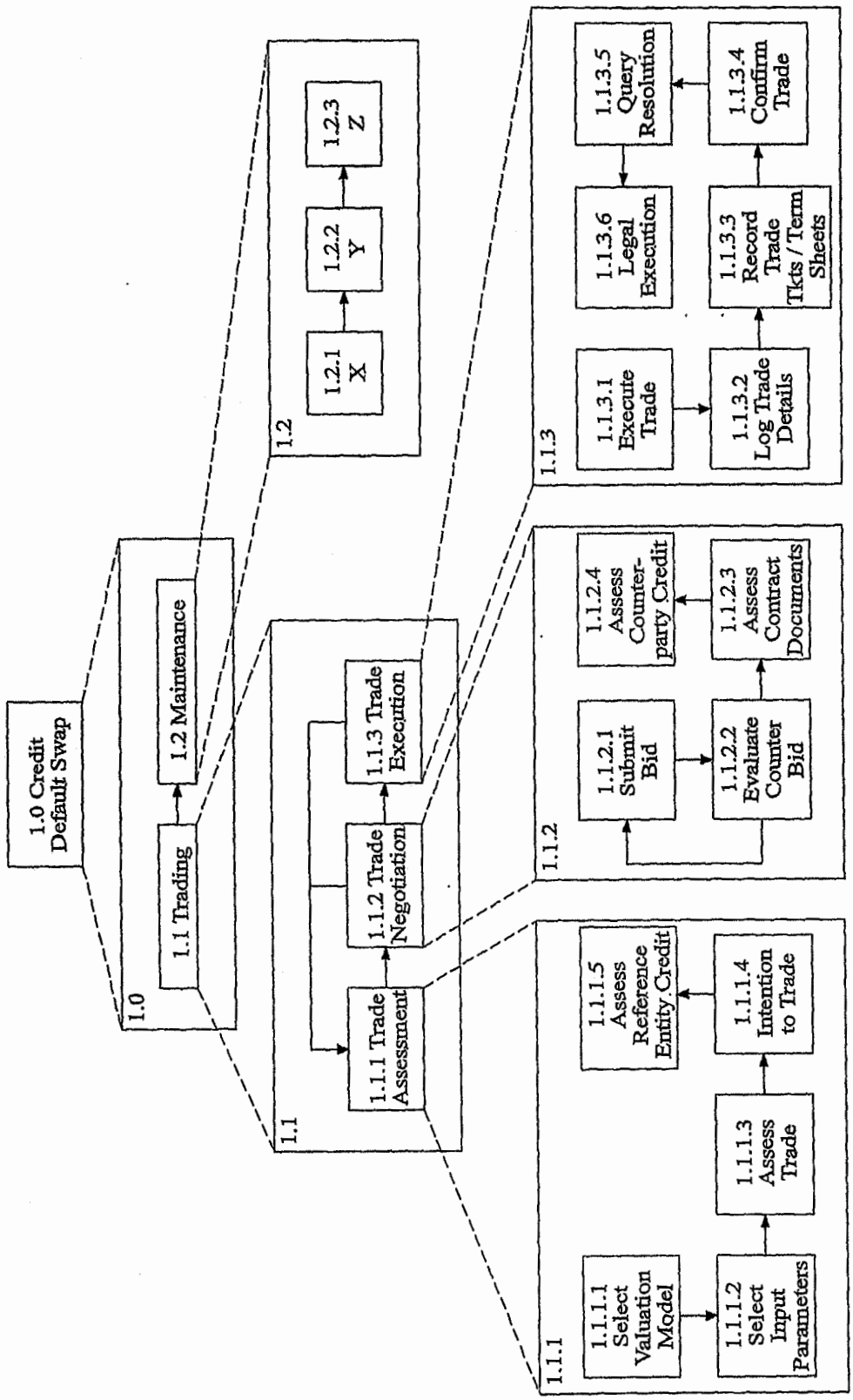

1.0 Credit Default Swap
1.0
1.1 Trading
1.2 Maintenance
1.1
1.1.1 Trade Assessment
1.1.2 Trade Negotiation
1.1.3 Trade Execution
1.2
1.2.1 X
1.2.2 Y
1.2.3 Z
1.1.1
1.1.1.1 Select Valuation Model
1.1.1.2 Select Input Parameters
1.1.1.3 Assess Trade
1.1.1.4 Intention to Trade
1.1.1.5 Assess Reference Entity Credit
1.1.2
1.1.2.1 Submit Bid
1.1.2.2 Evaluate Counter Bid
1.1.2.3 Assess Contract Documents
1.1.2.4 Assess Counter-party Credit
1.1.3
1.1.3.1 Execute Trade
1.1.3.2 Log Trade Details
1.1.3.3 Record Trade Tkts / Term Sheets
1.1.3.4 Confirm Trade
1.1.3.5 Query Resolution
1.1.3.6 Legal Execution

FIG. 11

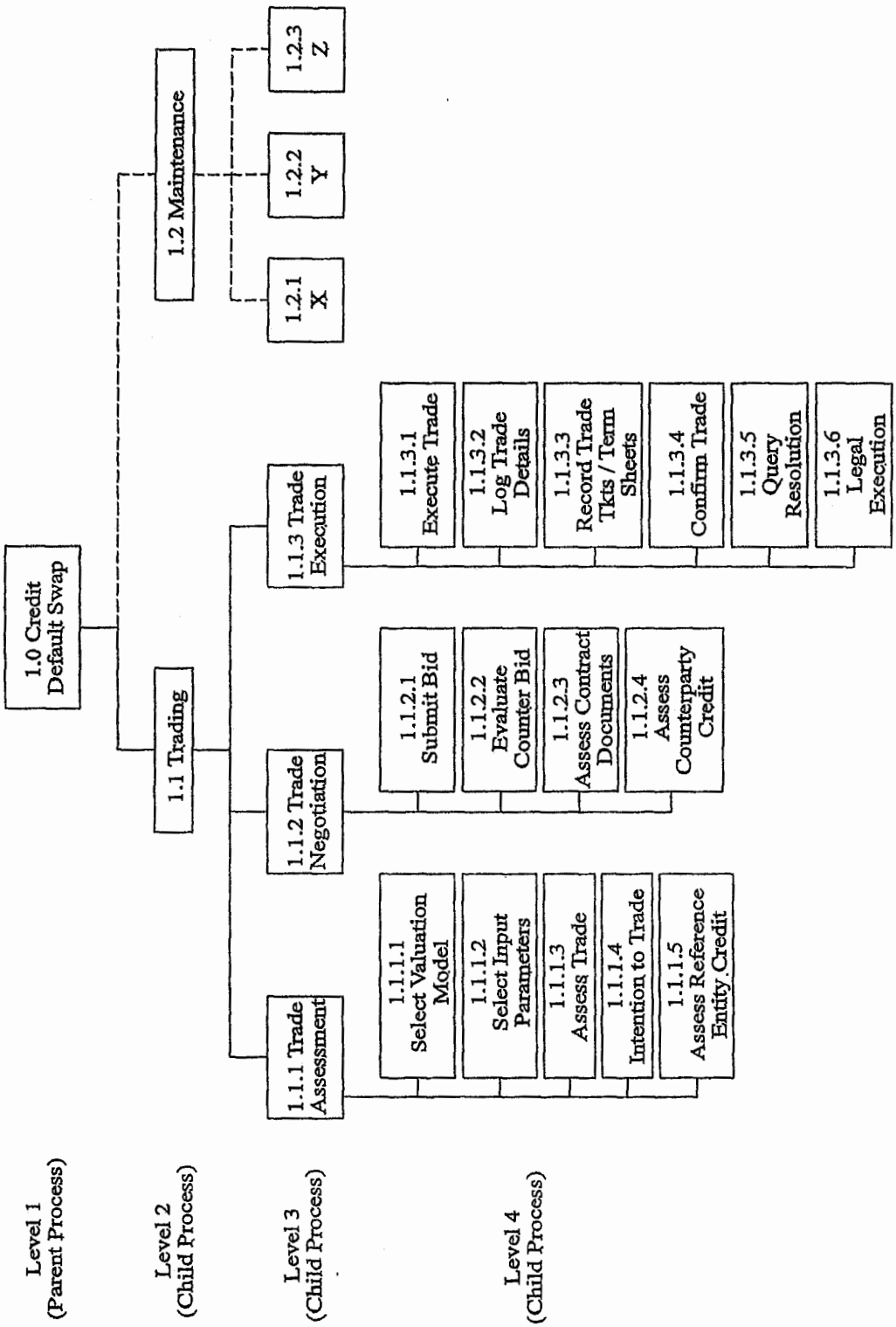

1.0 Credit Default Swap
1.1 Trading
1.2 Maintenance
1.2.1 X
1.2.2 Y
1.2.3 Z
1.1.1 Trade Assessment
1.1.2 Trade Negotiation
1.1.3 Trade Execution
1.1.1.1 Select Valuation Model
1.1.1.2 Select Input Parameters
1.1.1.3 Assess Trade
1.1.1.4 Intention to Trade
1.1.1.5 Assess Reference Entity Credit
1.1.2.1 Submit Bid
1.1.2.2 Evaluate Counter Bid
1.1.2.3 Assess Contract Documents
1.1.2.4 Assess Counterparty Credit
1.1.3.1 Execute Trade
1.1.3.2 Log Trade Details
1.1.3.3 Record Trade Tkts / Term Sheets
1.1.3.4 Confirm Trade
1.1.3.5 Query Resolution
1.1.3.6 Legal Execution
Level 1 (Parent Process)
Level 2 (Child Process)
Level 3 (Child Process)
Level 4 (Child Process)

FIG. 12

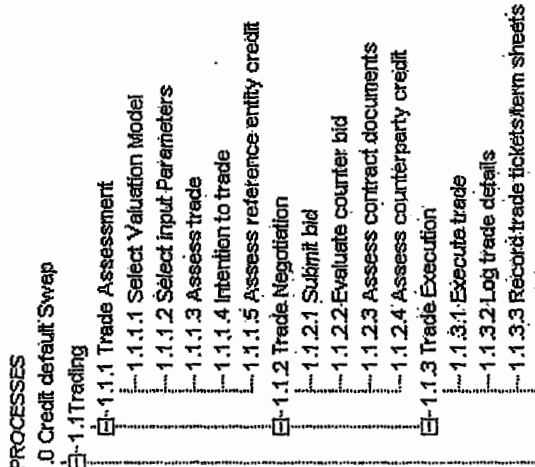

ALL PROCESSES
1.0 Credit default Swap
1.1Trading
1.1.1 Trade Assessment
1.1.1.1 Select Valuation Model
1.1.1.2 Select input Parameters
1.1.1.3 Assess trade
1.1.1.4 Intention to trade
1.1.1.5 Assess reference entity credit
1.1.2 Trade Negotiation
1.1.2.1 Submit bid
1.1.2.2 Evaluate counter bid
1.1.2.3 Assess contract documents
1.1.2.4 Assess counterparty credit
1.1.3 Trade Execution
1.1.3.1 Execute trade
1.1.3.2 Log trade details
1.1.3.3 Record trade tickets/term sheets
1.1.3.4 Confirm trade
1.1.3.5 Query Resolution
1.1.3.6 Legal Execution
1.2 Maintenance
1.2.1 X
1.2.2 Y
1.2.3 Z

FIG. 13

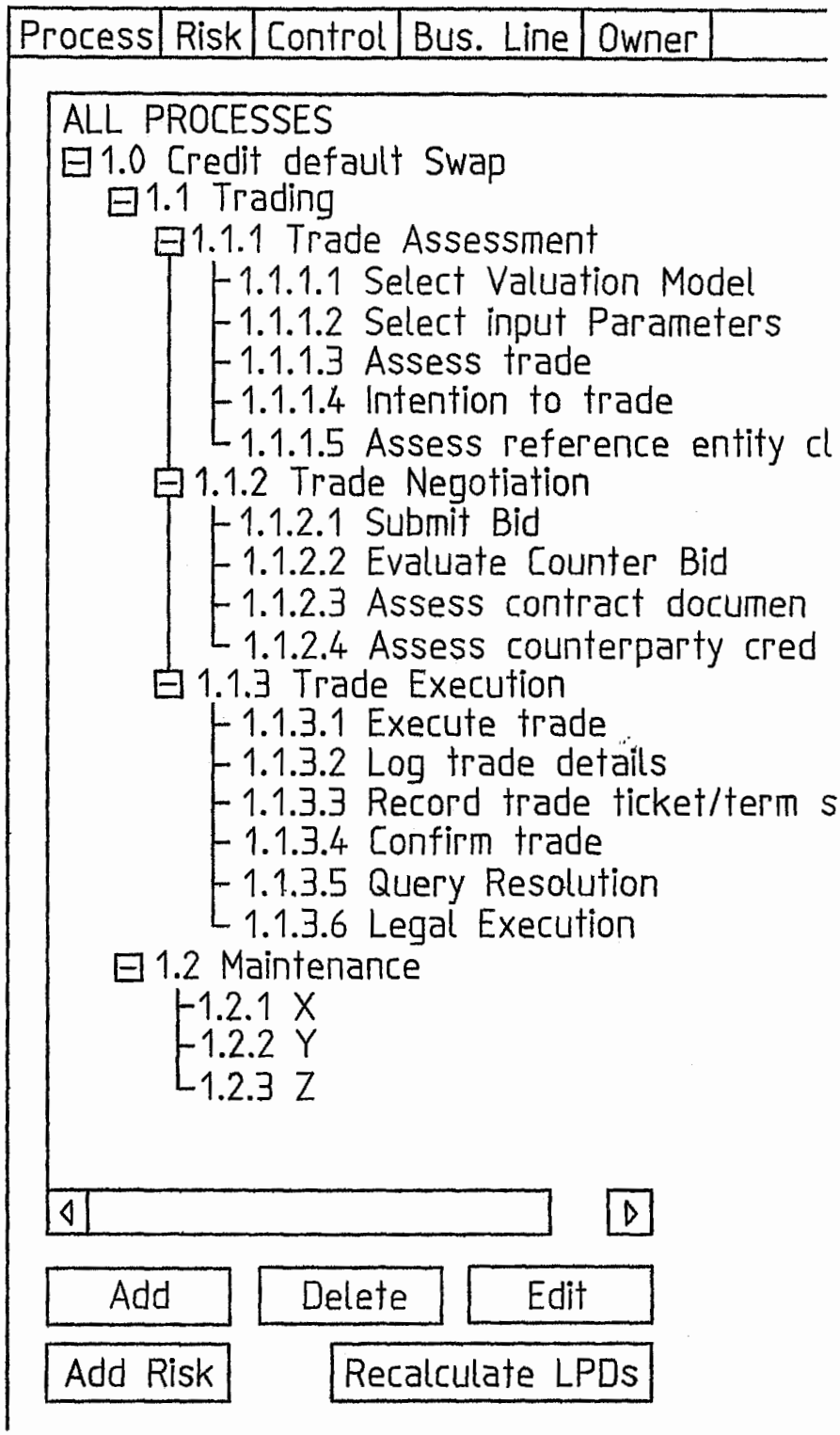

Process
Risk
Control
Bus. Line
Owner
ALL PROCESSES
1.0 Credit default Swap
1.1 Trading
1.1.1 Trade Assessment
1.1.1.1 Select Valuation Model
1.1.1.2 Select input Parameters
1.1.1.3 Assess trade
1.1.1.4 Intention to trade
1.1.1.5 Assess reference entity cl
1.1.2 Trade Negotiation
1.1.2.1 Submit Bid
1.1.2.2 Evaluate Counter Bid
1.1.2.3 Assess contract documen
1.1.2.4 Assess counterparty cred
1.1.3 Trade Execution
1.1.3.1 Execute trade
1.1.3.2 Log trade details
1.1.3.3 Record trade ticket/term s
1.1.3.4 Confirm trade
1.1.3.5 Query Resolution
1.1.3.6 Legal Execution
1.2 Maintenance
1.2.1 X
1.2.2 Y
1.2.3 Z
Add
Delete
Edit
Add Risk
Recalculate LPDs

FIG. 14

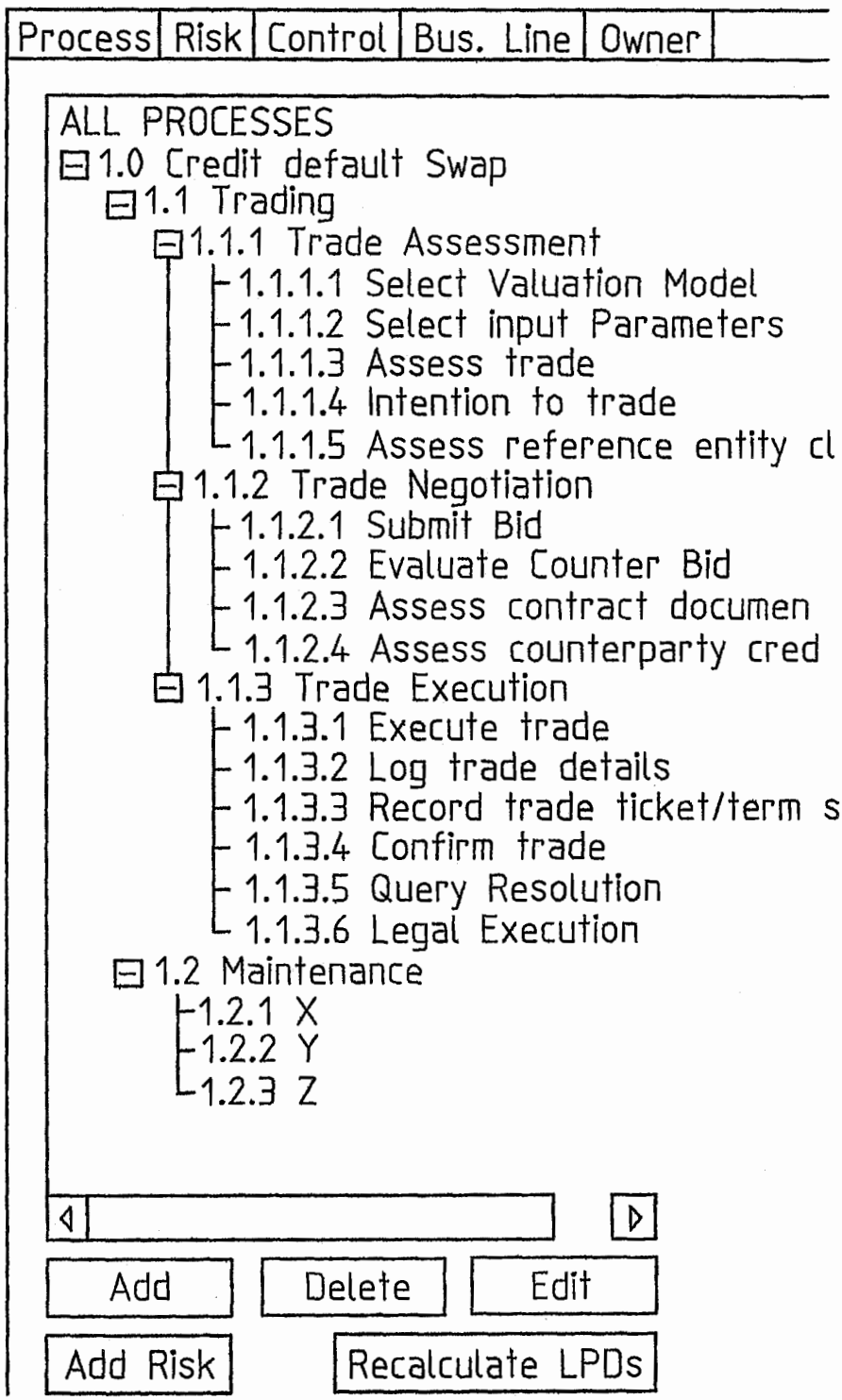

Process
Risk
Control
Bus. Line
Owner
ALL PROCESSES
1.0 Credit default Swap
1.1 Trading
1.1.1 Trade Assessment
1.1.1.1 Select Valuation Model
1.1.1.2 Select input Parameters
1.1.1.3 Assess trade
1.1.1.4 Intention to trade
1.1.1.5 Assess reference entity cl
1.1.2 Trade Negotiation
1.1.2.1 Submit Bid
1.1.2.2 Evaluate Counter Bid
1.1.2.3 Assess contract documen
1.1.2.4 Assess counterparty cred
1.1.3 Trade Execution
1.1.3.1 Execute trade
1.1.3.2 Log trade details
1.1.3.3 Record trade ticket/term s
1.1.3.4 Confirm trade
1.1.3.5 Query Resolution
1.1.3.6 Legal Execution
1.2 Maintenance
1.2.1 X
1.2.2 Y
1.2.3 Z
Add
Delete
Edit
Add Risk
Recalculate LPDs

FIG. 15a

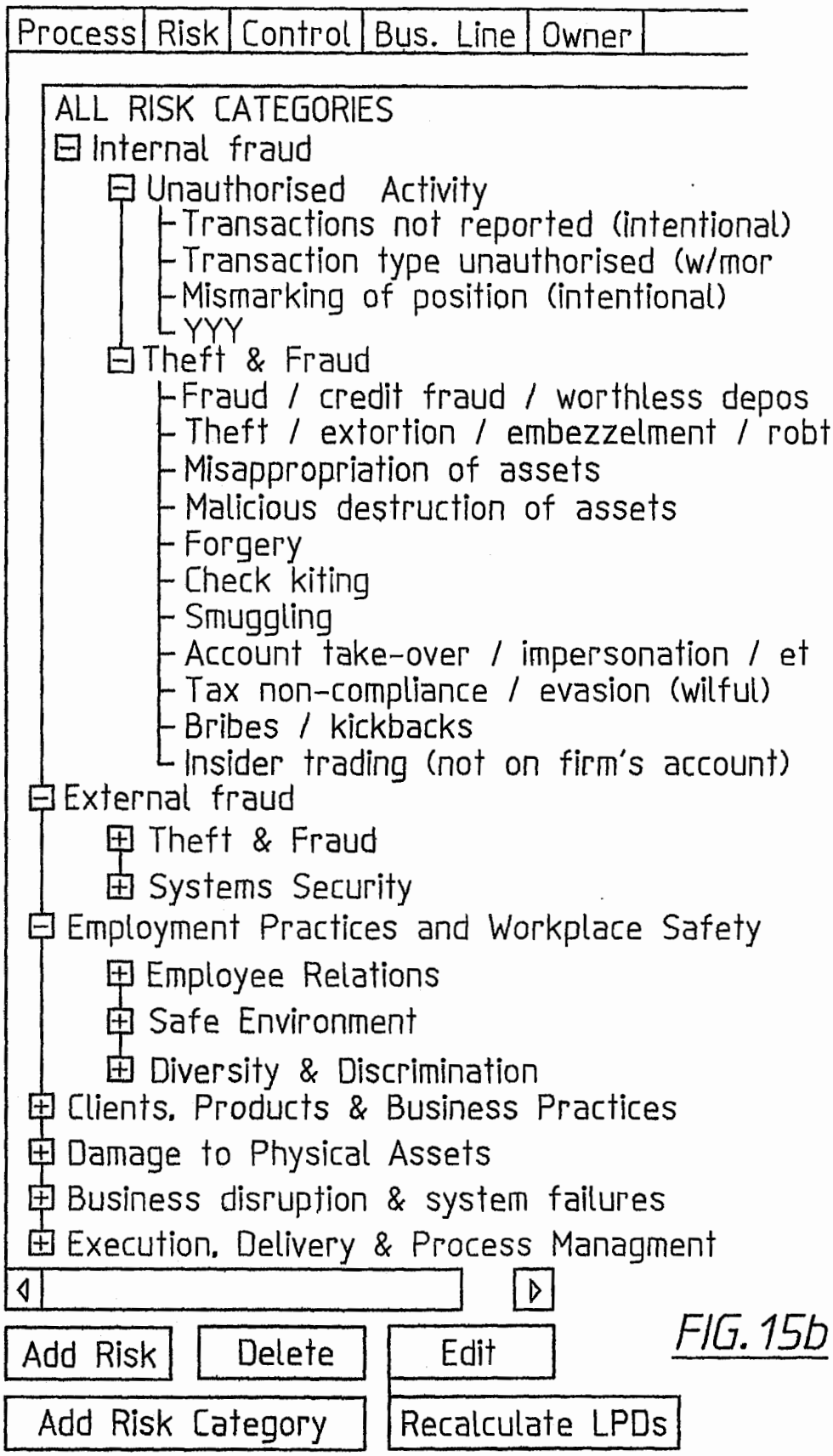

Process
Risk
Control
Bus. Line
Owner
ALL RISK CATEGORIES
Internal fraud
Unauthorised Activity
Transactions not reported (intentional)
Transaction type unauthorised (w/mor
Mismarking of position (intentional)
YYY
Theft & Fraud
Fraud / credit fraud / worthless depos
Theft / extortion / embezzelment / robt
Misappropriation of assets
Malicious destruction of assets
Forgery
Check kiting
Smuggling
Account take-over / impersonation / et
Tax non-compliance / evasion (wilful)
Bribes / kickbacks
Insider trading (not on firm's account)
External fraud
Theft & Fraud
Systems Security
Employment Practices and Workplace Safety
Employee Relations
Safe Environment
Diversity & Discrimination
Clients, Products & Business Practices
Damage to Physical Assets
Business disruption & system failures
Execution, Delivery & Process Managment
Add Risk
Delete
Edit
Add Risk Category
Recalculate LPDs

FIG. 15b

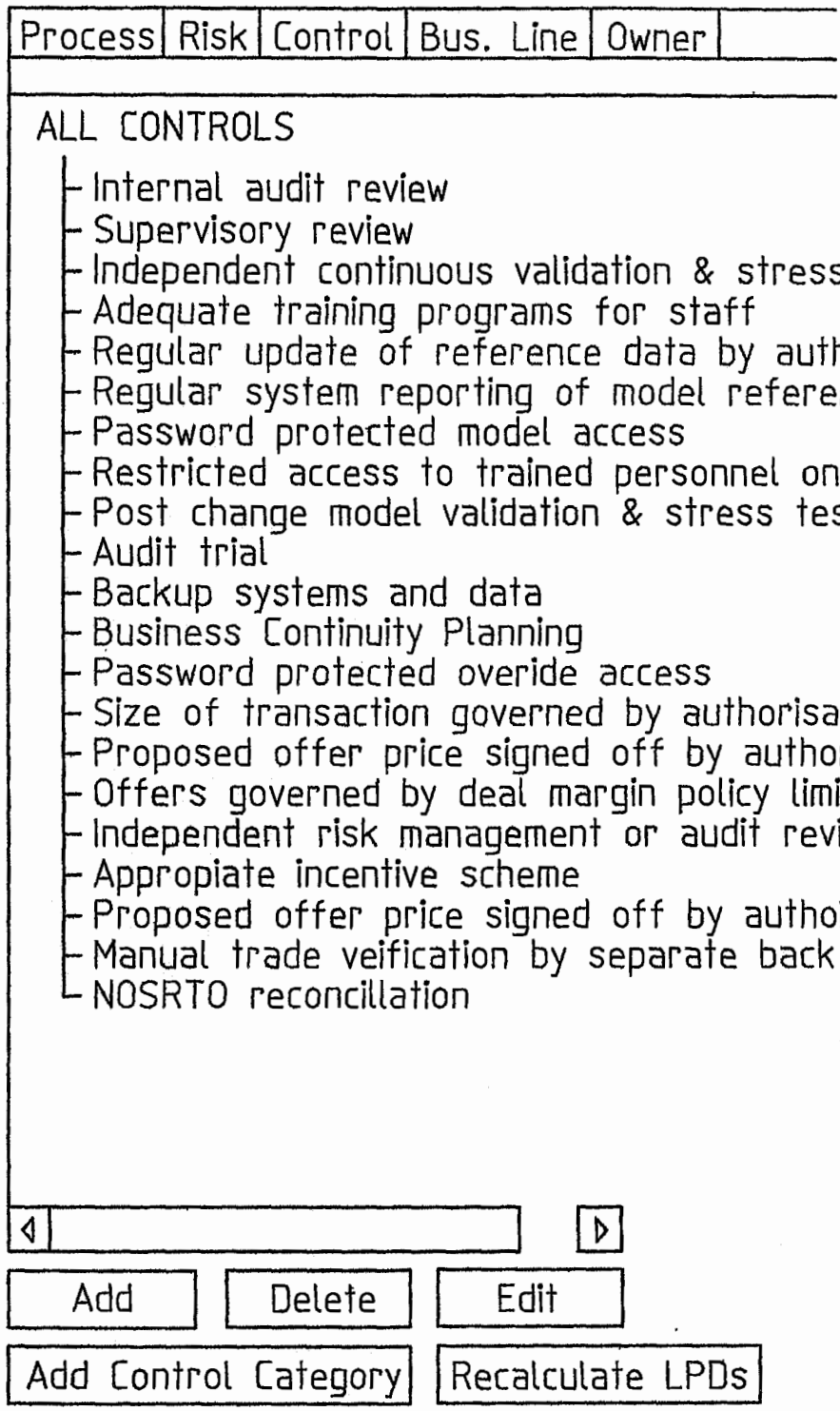

Process
Risk
Control
Bus. Line
Owner
ALL CONTROLS
Internal audit review
Supervisory review
Independent continuous validation & stress te
Adequate training programs for staff
Regular update of reference data by authoris
Regular system reporting of model reference
Password protected model access
Restricted access to trained personnel only
Post change model validation & stress testing
Audit trial
Backup systems and data
Business Continuity Planning
Password protected overide access
Size of transaction governed by authorisation
Proposed offer price signed off by authorised
Offers governed by deal margin policy limits
Independent risk management or audit review
Appropiate incentive scheme
Proposed offer price signed off by authoised
Manual trade veification by separate back off
NOSRTO reconcillation
Add
Delete
Edit
Add Control Category
Recalculate LPDs

FIG. 15c

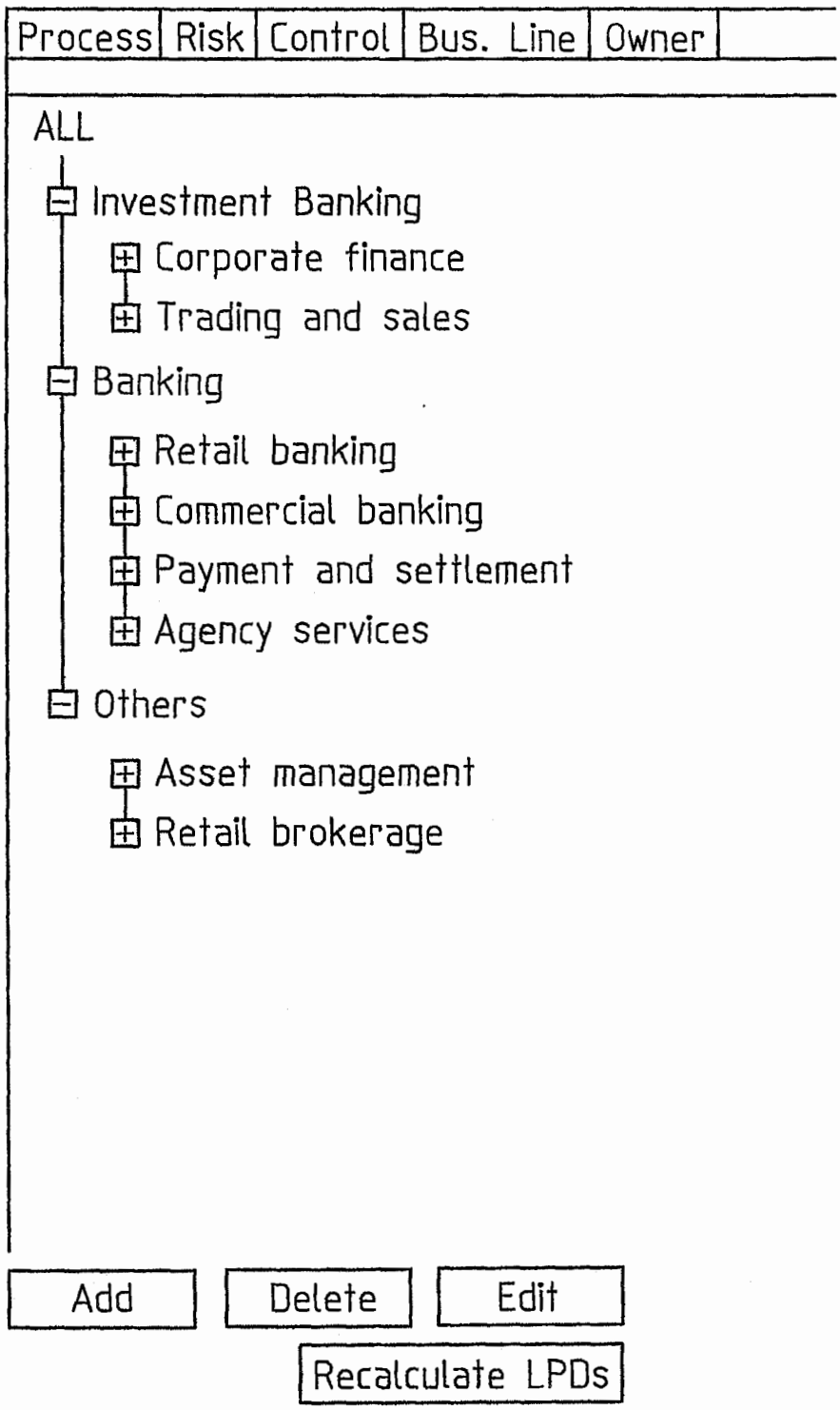

Process
Risk
Control
Bus. Line
Owner
ALL
Investment Banking
Corporate finance
Trading and sales
Banking
Retail banking
Commercial banking
Payment and settlement
Agency services
Others
Asset management
Retail brokerage
Add
Delete
Edit
Recalculate LPDs

FIG. 15d

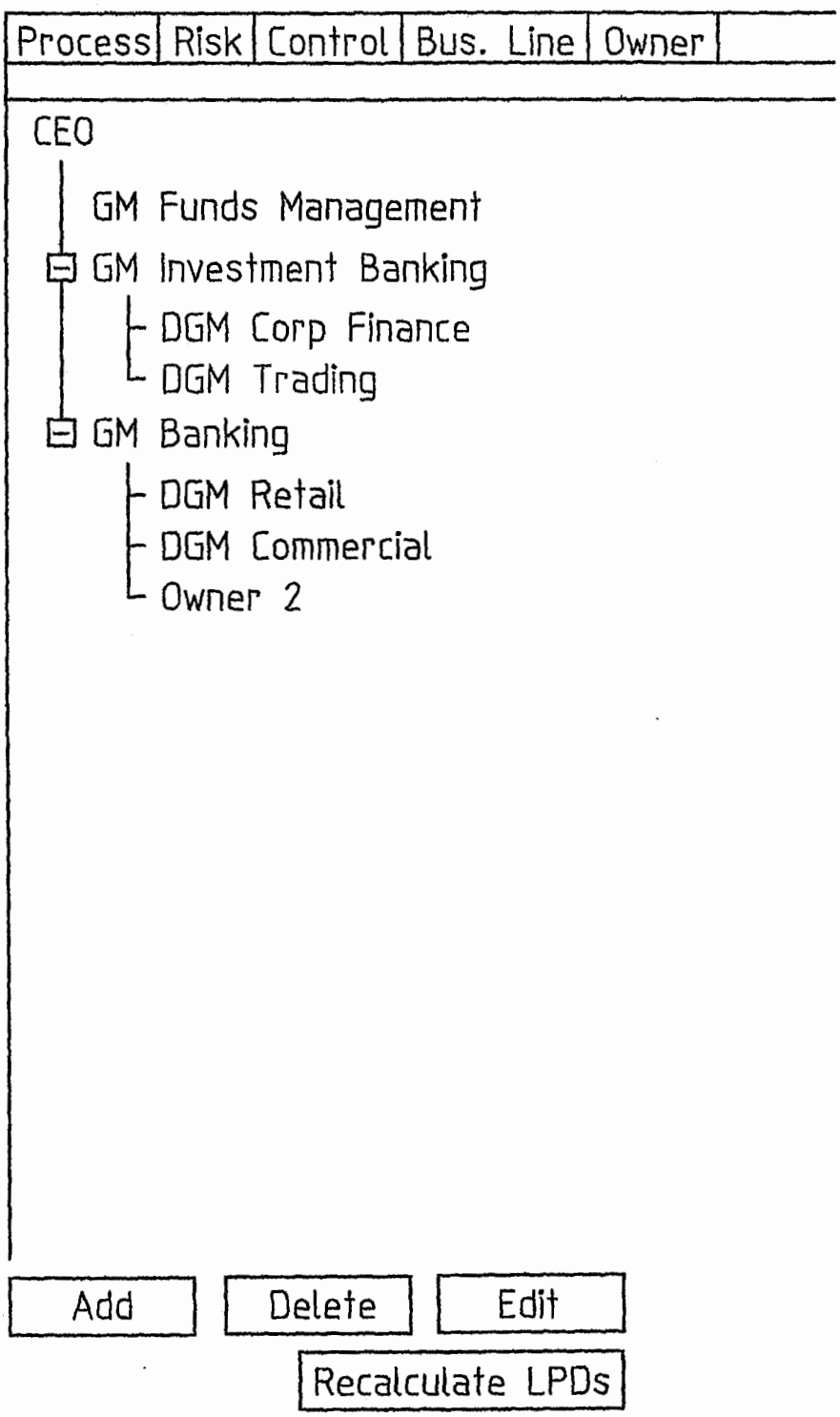

Process
Risk
Control
Bus. Line
Owner
CEO
GM Funds Management
GM Investment Banking
DGM Corp Finance
DGM Trading
GM Banking
DGM Retail
DGM Commercial
Owner 2
Add
Delete
Edit
Recalculate LPDs

FIG. 15e

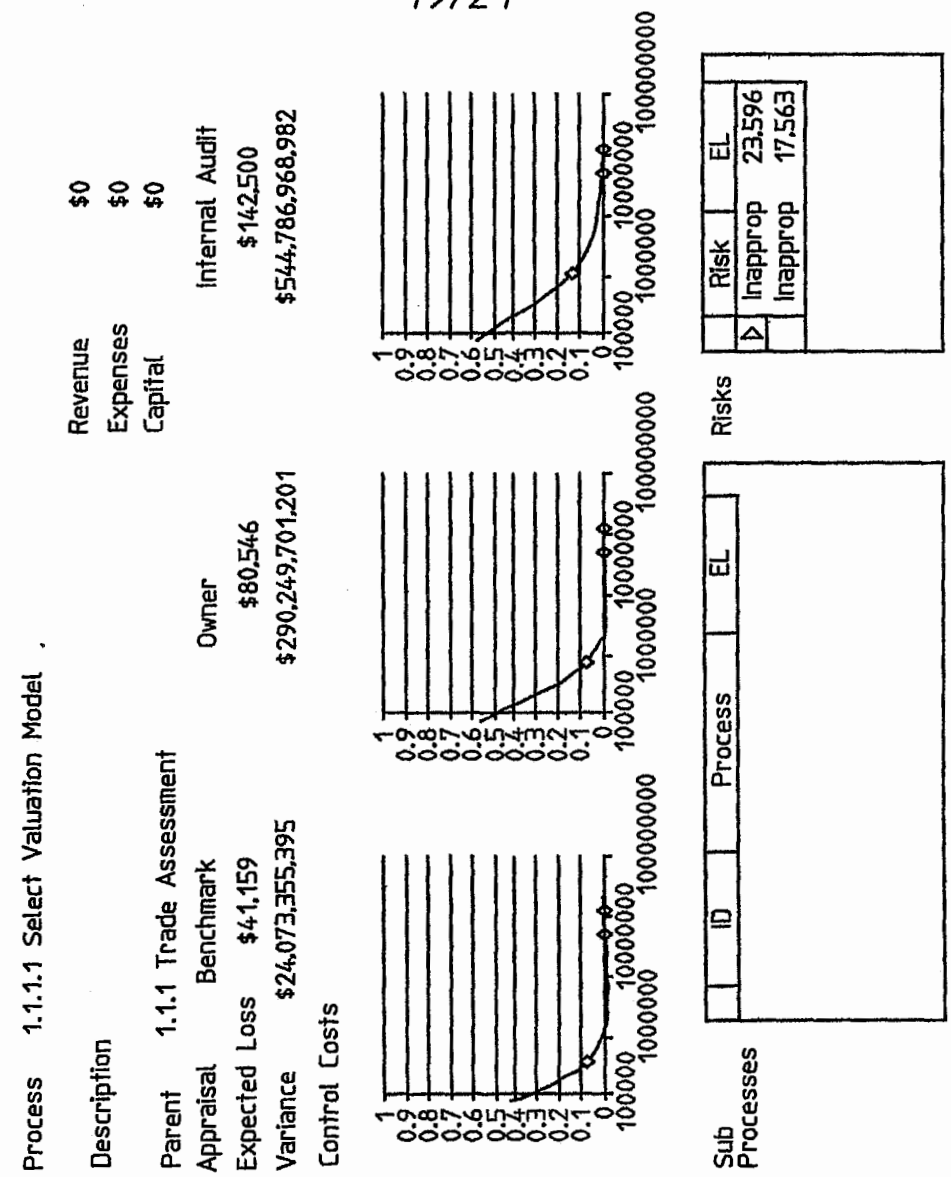

Process Risk Control Bus. Line Owner
ALL PROCESSES
1.0 Credit default Swap
1.1 Trading
1.1.1 Trade Assessment
1.1.1.1 Select Valuation Model
1.1.1.2 Select input Parameters
1.1.1.3 Assess trade
1.1.1.4 Intention to trade
1.1.1.5 Assess reference entity cl
1.1.2 Trade Negotiation
1.1.2.1 Submit Bid
1.1.2.2 Evaluate Counter Bid
1.1.2.3 Assess contract documen
1.1.2.4 Assess counterparty cred
1.1.3 Trade Execution
1.1.3.1 Execute trade
1.1.3.2 Log trade details
1.1.3.3 Record trade ticket/term s
1.1.3.4 Confirm trade
1.1.3.5 Query Resolution
1.1.3.6 Legal Execution
1.2 Maintenance
1.2.1 X
1.2.2 Y
1.2.3 Z
Add
Delete
Edit
Add Risk
Recalculate LPDs
Process 1.1.1.1 Select Valuation Model
Description
Parent 1.1.1 Trade Assessment
Appraisal Benchmark Owner
Expected Loss $41,159 $80,546
Variance $24,073,355,395 $290,249,701,201
Control Costs
Revenue $0
Expenses $0
Capital $0
Internal Audit
$142,500
$544,786,968,982
Sub Processes
ID Process EL
Risks
Risk EL
Inapprop 23,596
Inapprop 17,563

FIG. 16

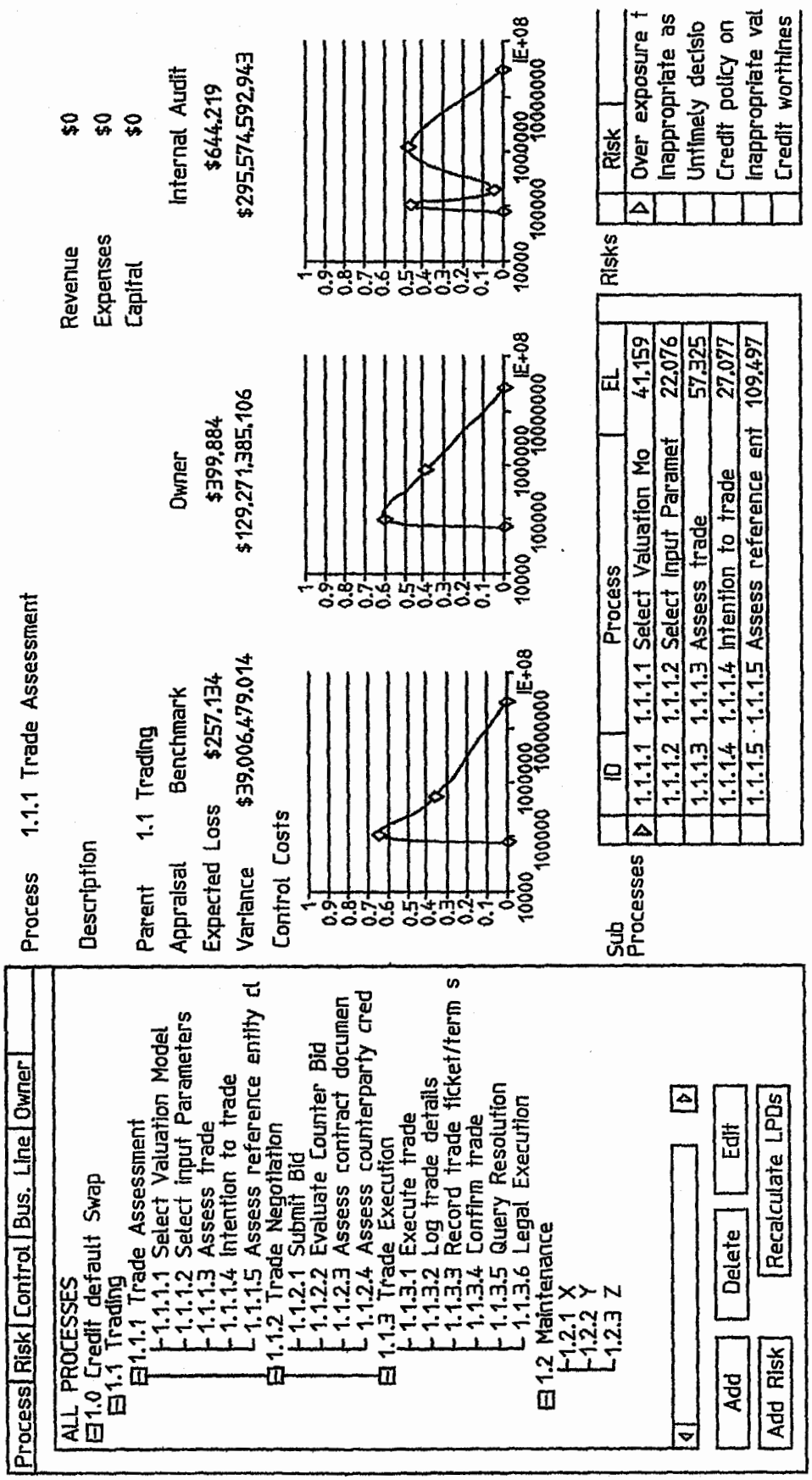

Process Risk Control Bus. Line Owner
ALL PROCESSES
1.0 Credit default Swap
1.1 Trading
1.1.1 Trade Assessment
1.1.1.1 Select Valuation Model
1.1.1.2 Select input Parameters
1.1.1.3 Assess trade
1.1.1.4 Intention to trade
1.1.1.5 Assess reference entity cl
1.1.2 Trade Negotiation
1.1.2.1 Submit Bid
1.1.2.2 Evaluate Counter Bid
1.1.2.3 Assess contract documen
1.1.2.4 Assess counterparty cred
1.1.3 Trade Execution
1.1.3.1 Execute trade
1.1.3.2 Log trade details
1.1.3.3 Record trade ticket/term s
1.1.3.4 Confirm trade
1.1.3.5 Query Resolution
1.1.3.6 Legal Execution
1.2 Maintenance
1.2.1 X
1.2.2 Y
1.2.3 Z
Add
Delete
Edit
Add Risk
Recalculate LPDs
Process 1.1.1 Trade Assessment
Description
Parent 1.1 Trading
Appraisal Benchmark
Expected Loss $257.134
Variance $39,006,479,014
Control Costs
Owner
$399,884
$129,271,385,106
Revenue $0
Expenses $0
Capital $0
Internal Audit
$644,219
$295,574,592,943
Sub Processes
ID
Process
EL
1.1.1.1 1.1.1.1 Select Valuation Mo 41,159
1.1.1.2 1.1.1.2 Select Input Paramet 22,076
1.1.1.3 1.1.1.3 Assess trade 57,325
1.1.1.4 1.1.1.4 Intention to trade 27,077
1.1.1.5 1.1.1.5 Assess reference ent 109,497
Risks
Risk
Over exposure t
Inappropriate as
Untimely decisio
Credit policy on
Inappropriate val
Credit worthines

FIG. 17

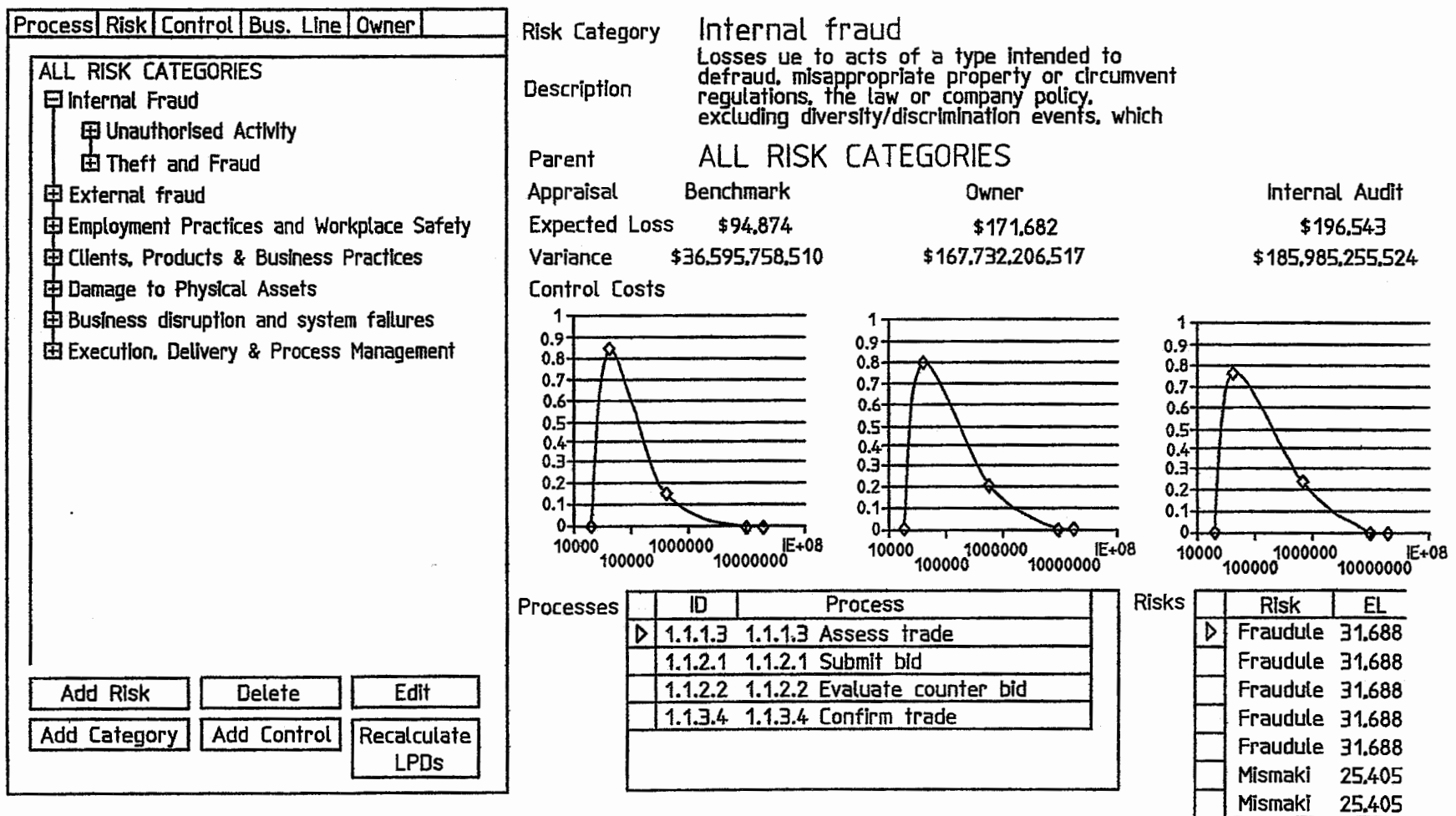

Process
Risk
Control
Bus. Line
Owner
ALL RISK CATEGORIES
Internal Fraud
Unauthorised Activity
Theft and Fraud
External fraud
Employment Practices and Workplace Safety
Clients, Products & Business Practices
Damage to Physical Assets
Business disruption and system failures
Execution, Delivery & Process Management
Add Risk
Delete
Edit
Add Category
Add Control
Recalculate LPDs
Risk Category
Internal fraud
Description
Losses ue to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity/discrimination events, which
Parent
ALL RISK CATEGORIES
Appraisal
Benchmark
Owner
Internal Audit
Expected Loss
$94,874
$171,682
$196,543
Variance
$36,595,758,510
$167,732,206,517
$185,985,255,524
Control Costs
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
10000
100000
1000000
10000000
1E+08
Processes
ID
Process
1.1.1.3
1.1.1.3 Assess trade
1.1.2.1
1.1.2.1 Submit bid
1.1.2.2
1.1.2.2 Evaluate counter bid
1.1.3.4
1.1.3.4 Confirm trade
Risks
Risk
EL
Fraudule
31,688
Fraudule
31,688
Fraudule
31,688
Fraudule
31,688
Fraudule
31,688
Mismaki
25,405
Mismaki
25,405

FIG. 18