

# Calyon's SOA project

May `08

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## Agenda

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Calyon in a nutshell

Equity Derivatives business

Business drivers

Why SOA ?

How SOA ?

Our project

Technologies

Conclusion

## Exec summary

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Calyon, a French Corporate and Investment bank, is undertaking an aggressive growth strategy on Equity Derivatives business

This strategy leads to increased complexity and larger volumes

To support this strategy, SOA brings an answer to complexity handling and better process management

Even though this path is not straightforward, SOA adds value through better modularity and IS in line with business process

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***Calyon, the Corporate & Investment Banking  
arm of Credit Agricole***



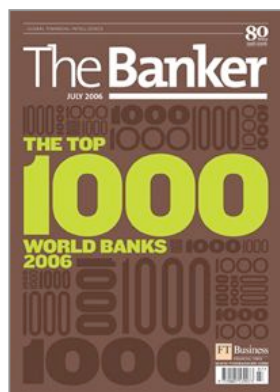
*Credit Agricole Group*

*Credit Agricole SA*

*Calyon*

# Crédit Agricole Group, a banking giant with a global footprint

**Crédit Agricole is the World's No. 6 Bank measured by Tier One Capital**



Source: The Banker, July 2006

**... and No. 7 Bank measured by Total Assets**

## Top 20 by Tier One Capital

2005 (Year-end)

Rank	Bank	Country	(USD million)
1	Citigroup	USA	79 407.00
2	HSBC Holdings	UK	74 403.00
3	Bank of America Corp	USA	74 027.00
4	JP Morgan Chase & Co	USA	72 474.00
5	Mitsubishi UFJ Financial Group	Japan	63 897.79
<b>6</b>	<b>Crédit Agricole Groupe</b>	<b>France</b>	<b>60 598.80</b>
7	Royal Bank of Scotland	UK	48 584.71
8	Sumitomo Mitsui Financial Group	Japan	39 573.25
9	Mizuho Financial Group	Japan	38 806.64
10	Santander Central Hispano	Spain	38 376.78
11	China construction Bank Corp.	China	35 646.82
12	HBOS	UK	35 583.68
13	Unicredit	Italy	34 029.73
14	Barclays Bank	UK	32 532.71
15	ABN Amro Bank	Netherlands	32 301.52
16	Industrial and Commercial Bank of China		31 670.34
17	Bank of China	China	31 348.19
18	UBS	Switzerland	30 391.08
19	Wells Fargo & co	USA	29 873.00
20	Rabobank Group	Netherlands	29 326.41

## Top 20 by Total Assets

2005 (Year-end)

Rank	Bank	Country	Assets
1	Barclays Bank	UK	1 591 524
2	UBS	Switzerland	1 567 564
3	Mitsubishi UFJ Financial Group	Japan	1 508 541
4	HSBC Holdings	UK	1 501 970
5	Citigroup	USA	1 493 987
6	BNP Paribas	France	1 484 109
<b>7</b>	<b>Crédit Agricole Groupe</b>	<b>France</b>	<b>1 380 617</b>
8	Royal Bank of Scotland	UK	1 337 512
9	Bank of America Corp	USA	1 291 795
10	Mizuho financial Group	Japan	1 226 627
11	JP Morgan Chase & Co	USA	1 198 942
12	Deutsche bank	Germany	1 170 415
13	ABN Amro Bank	Netherlands	1 039 052
14	Credit Suisse Group	Switzerland	1 018 833
15	Société Générale	France	1 000 846
16	ING Bank	Netherlands	983 880
17	Santander General Hispano	Spain	954 473
18	HBOS	UK	931 255
19	UniCredit	Italy	928 395
20	Sumitomo Mitsui Financial Group	Japan	881 593

## Calyon, the Corporate & Investment Banking arm of Credit Agricole

### Key Figures

#### Key Data

Creation	May 2004
Nb Employees <sup>(1)</sup>	13 000
Nb Countries	58

#### Rating

Moody 's	Aa2
Standard & Poor 's	AA-
Fitch	AA

#### Balance Sheet <sup>(1)</sup>

Total Balance Sheet	€ 588 bn
Weighted Assets	€ 126 bn
Shareholders Equity	€ 13.2 bn

#### Activity / Profitability <sup>(1)</sup>

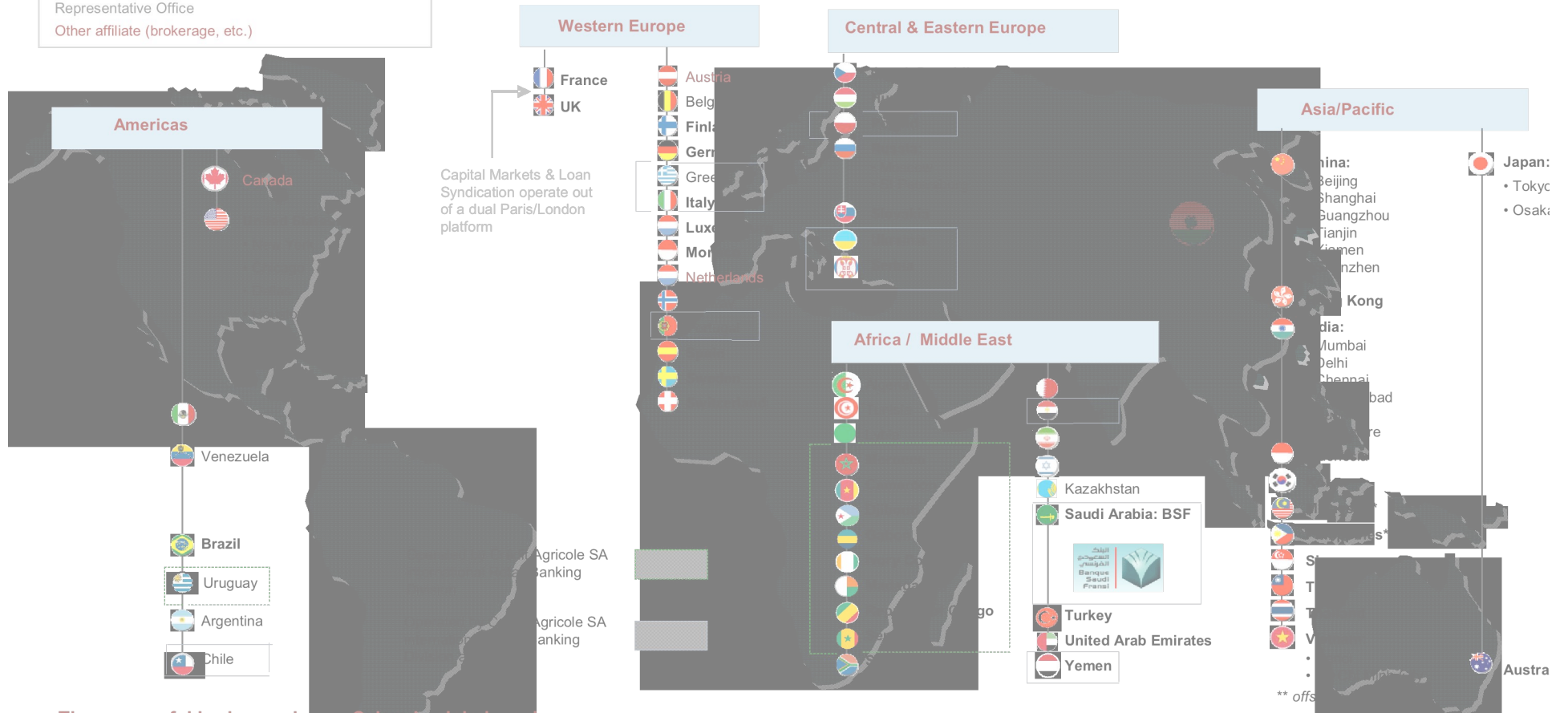
Net Banking Income	€ 5.5 bn
Gross Operating Profit	€ 2 135 m
Net Result <sup>(2)</sup>	€ 1 657 m

<sup>(1)</sup> As of December 31, 2006

<sup>(2)</sup> Excluding minority interests

# International network (58 countries), the sense to act locally

Branch or Banking subsidiary  
 Representative Office  
 Other affiliate (brokerage, etc.)



Three powerful brokers enhance Calyon's global reach:

**CALYON FINANCIAL**

Global leader in futures brokerage, head-quartered in Chicago

**CHEUVREUX**

Leader in equity brokerage and research, covering 700 stocks in Europe

**CLSA ASIA-PACIFIC MARKETS**

N°1 equity brokerage and independent research in Asia (excl. Japan)

From wikipedia : “In finance, an **equity derivative** is a class of financial instruments whose value is at least partly *derived* from one or more **underlying equity securities**. Market participants trade equity derivatives in order to transfer or **transform** certain **risks** associated with the underlying security.

Options are by far the most common equity derivative, however there are many other types of equity derivatives that are actively traded.”



## Equity Derivatives Business – 2/2

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### Systems on this area are complex :

Large variety of products traded (from vanilla to exotics)

Connectivity to various exchanges

Huge amount of data coming from exchanges

Numerous processes to complete (Front Office to Accounting)

Lots of different systems handling processes and products

Regulators constraints (data retention, compliance, ...)

### Technologies we deal with :

Real time or near real time (<1ms) technology

Middleware from transport to process monitoring

Grid computing

...

## Business Drivers – 1/2

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Calyon is drastically developing its Equity Derivatives business ; covering all product types and geographies :

From the franchise Calyon has on the exotics market, we develop simpler products but with higher volume

We are as well strengthening exotics business with more complexity and more business

We are exploring new businesses requiring new technologies

Regulators and Internal control are more and more demanding

## Business Drivers – 2/2

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### Equity Derivatives market evolves rapidly :

More complex products leading to more complex systems

Increasing volumes to keep revenues implying greater automation

IS covering a broader scope

### IS must evolve to meet these requirements :

Being modular to enable a functional split into blocks that handle complexity for each domain

Handling complex business process easily and in a flexible manner

Preferring exception management to manage larger volumes

Avoiding redundancies which generate costs and complexity

## Why SOA ? – 1/2

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Two main reasons :

Not carrying complexity  
throughout the whole system



SOA  
Service Approach

Mastering complex business  
processes



Process Approach

### Service approach :

Integrate sub-systems through services

Ease uniqueness principle avoiding redundancies

Build a core framework of services for future development

### Process approach :

Separate business process from code

Provide better visibility on business processes

Ease maintenance and evolution of business processes

## How SOA ? – 1/3

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Such a project comes with various risks :

Mastering the number of services

Mastering the scope of services (no overlapping, completeness)

New technical architecture  
New technologies to master

Two architects teams are in place to mitigate those risks :

**Functional architects**

**Technical architects**

### Functional architects, in charge of :

Building functional domains big picture

Assuring consistency across services through a common model

Defining services granularity and their signature

Defining and maintaining process modeling and tooling

These architects have a double reporting between head of implementation teams and head of functional architecture

### Technical architects, in charge of :

Defining technologies to be used

Defining various processes (service lifecycle, integration testing, application rollout, ...)

Helping teams mastering selected technologies

Analyzing IS performance (HPP)



## Where do we stand ?

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Sep '06 : first service rolled out : referential service to access legacy

Q4 '06 : set up of Technical and Functional architects teams

End of '06 : first application in SOA mode to be released

Apr '07 : first WPS process rolled out

Q4 '07 : international deployment of our services

Nov '07 : change of organization from business line oriented to functional oriented

Apr '08 : pricing service release

## What are the technologies we use ?

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Prior to this project we used :

WAS for Intranet development

WBI for all inter-application exchanges (in a process oriented mode)

For this project we use :

WAS for Web Services

WebSphere Process Server (WPS) for process orchestration

WebSphere Integration Developer (WID) for business process modeling

.Net for GUIs

GigaSpaces for distributed caching

Datasynapse for grid computing

} WebSphere software



## Feedback

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SOA is a must have for the type of projects we carry out

This approach requires an initial assessment to build the blueprint

This approach heavily impacts projects : they have to rely on services :

- Creating functional dependencies among teams

- Creating planning dependencies

- This comes with a dramatic organizational and human impact

► To conclude : IT WORKS !



# Questions & Answers