

Providing Industrial Strength Analysis in a Real-Time Trading Environment

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Gautam Dixit, Technical Director, Kalahari



COMPANY OVERVIEW

Founded in 1987, Kalahari Limited (Kalahari) develops financial analytical and real-time price discovery software for front office traders in banks, money brokering institutions, utility companies, corporations and other trading institutions. As a 15-year-old global company based in the UK, Kalahari has achieved an impressive global customer base, including many of the world's largest global financial players such as ABN AMRO, Intercapital PLC and Tullett Liberty Ltd.

Kalahari's flagship product is kACE® (Kalahari Advanced Calculation Environment), a leading intelligent price discovery system toolkit. kACE® uses a structured modeling technique, which makes it flexible and reusable. Within the system, spreadsheets and functions are simply treated as objects that can be added to a model tree, ready-to-use, without having to rebuild the whole application. The toolkit's drag and drop functionality enables programmers to save significant time by not having to code.

THE NEED

To price specific instruments, a typical trading floor had a mixture of trading tools provided by in-house IT departments, data vendors and third party specialists, and these ad-hoc systems were difficult and expensive to support and control. Traders, for example, would create financial

spreadsheets with customized financial functions that would be modified by other traders. Eventually, the spreadsheets would get passed on to the Information Technology Department, who became responsible for managing the spreadsheet. Knowing what version of the spreadsheet was accurate and up to date became an information technology nightmare for IT departments, particularly in the banking industry.

Kalahari needed to provide a way for their customers to take control of their financial instrument pricing technology. Kalahari decided to develop a real-time pricing discovery toolkit that met their customers and potential customer's needs:

- A system that met the basic financial pricing needs of all customers, yet the system needed to be easily customized.
- A solution that could easily integrate with other systems.
- A standard calculation platform that could be applied to either a whole trading room or to specific desks.
- A solution that enabled developers to build systems in a rapid development environment using drag and drop graphical capabilities.
- A system that both traders and IT people (key decision makers) could agree was a good solution.

As part of their price discovery solution, Kalahari needed to provide a comprehensive set of industry standard financial analytics. However, their primary focus was not the development of financial analytics, and Kalahari knew that creating the comprehensive range of financial functions their clients needed would require a large commitment in time, resources and capital. Further, the effort it would take to make their analytics industry standard and widely accepted could not be cost justified. Thus, Kalahari decided to outsource the financial analytics component of their solution. Kalahari looked for a company who provided analytics that could easily integrate with Kalahari's price discovery system, enabling customers to easily add functionality to their financial systems. It didn't take long for Kalahari to select the analytics in FINCAD® Developer.

THE SOLUTION

Kalahari's customers can now take control of their financial instrument pricing technology. Using kACE®, customers can use their existing spreadsheets and rebuild the spreadsheets within kACE®, or they can integrate the spreadsheet as a function. Building a solution using kACE® enables companies to build distributed applications and financial calculations. Pricing tools can be split over a number of client machines, giving both end users and IT developers the flexibility they need. kACE® solutions also enable live data feeds.

Case Study *continued*

An important component of kACE® is that it allows developers to integrate third party and in-house libraries as well as Excel models, and users can either select from a series of pre-built pricing screens or build their own using the design feature built into kACE®. The broad spectrum of calculations covered within kACE® means that only the one system is needed, and all calculations are routed through it. This allows tightly controlled management of the way traders price their deals, which creates more accuracy and reduces risk. FINCAD provides the key third party financial analytics embedded in kACE®, as FINCAD had ready-to-use industry standard financial analytics that Kalahari could use by accessing FINCAD's math library, available in FINCAD Developer.

THE BENEFITS OF USING FINCAD ANALYTICS

What were the main reasons Kalahari chose FINCAD as a third party financial analytics supplier? Kalahari's customers and potential customers were already familiar with FINCAD, as their analytics were widely accepted and utilized in the industry. Not only did Kalahari save time and money by not having to build the basic financial analytics in their applications and development tools, but also they knew that their customers were happy to use analytics that had already been tried and tested.

TWO MOST IMPORTANT REASONS THAT KALAHARI CHOSE FINCAD ANALYTICS WERE:

- i) FINCAD's Analytics were applied consistently across functions. It enabled end users and developers to not have to learn every function from the bottom up. "Unlike other financial analytics providers," states Gautam Dixit, Technical Director at Kalahari, "FINCAD is the only one that applies its functional model consistently across all financial functions. For our company to be able to offer a structured and easily implementable model, this is an absolute must!"
- ii) The functions covered have good drill-down characteristics. Basic functions are used to build more sophisticated ones, and both types are exposed. Therefore, Kalahari is able to use ready made high level functions, without losing

The screenshot shows the 'Bond Definition' window in kACE. It contains various fields for bond parameters such as ShortName (THA 6H APR03), Coupon (6,5000), CountryConvention (Generic bond), Frequency (1 annual), Accrual (1 actual/365 (fixed)), BusinessDay (compounded otherwise), DatedDate (23 Apr 1993), and CouponDateAfterDate (23 Apr 1994). It also shows Ex_Dividend (7 working days (UK Gilt)), ExDividendDays-UK (0.00), YieldMethod-GER (1 use ISMA yield), BondType-FR (1 Dat), BondType-IR (1 annual), RedemptionValue-ITL (100.00), OddFirstCoupon (23 Apr 1994), and OddLastCoupon (23 Apr 2003). On the right, there are fields for Settle (27 Jun 2001), DeliveryDate (10 Sep 2001), DelivDays (75), Contract (1 i), CTDIndex (1), CTDYieldShift (30.152), ShiftedCTDYield (7.0431), and ShiftedPrice (99.50). Below these fields is a 'Bond Future' table with columns for Bid, Ask, Mid, Select, and Ref. The table lists 10 rows of bond future data with columns for ISIN, Maturity, Price, BMPrice, PriceShift, P Factor, Imp Repo, Yield, Shifted Y, and Shifted P.

	ISIN	Maturity	Price	BMPrice	PriceShift	P Factor	Imp Repo	Yield	Shifted Y	Shifted P
1	DE0001134898	22 Apr 2003	100.00	0.00	50.00	1.0000	-2.0771	6.7416	7.0431	99.48
2	DE0001090033	23 Apr 2003	100.00	0.00	50.00	1.0000	-2.0895	6.4822	6.7837	99.50
3	DE0001141273	19 May 2003	100.00	0.00	50.00	1.0000	-2.1843	4.5018	4.8033	99.45
4	DE0001090041	11 Jun 2003	100.00	0.00	50.00	1.0000	-2.0713	6.8697	7.1712	99.47
5	DE0001090058	09 Jul 2003	100.00	0.00	50.00	1.0000	-2.0829	6.6311	6.9327	99.43
6	DE0001134906	15 Jul 2003	100.00	0.00	50.00	1.0000	-2.0883	6.5041	6.8056	99.42
7	DE0001141281	26 Aug 2003	100.00	0.00	50.00	1.0000	-2.2198	3.7503	4.0518	99.38
8	?	#ha	0.00	0.00	50.00	0.0000	0.0000	0.0000	0.0000	0.00
9	?	#ha	0.00	0.00	50.00	0.0000	0.0000	0.0000	0.0000	0.00
10	?	#ha	0.00	0.00	50.00	0.0000	0.0000	0.0000	0.0000	0.00

A sample Bond page in kACE®

The screenshot shows the 'Component Properties for SwapStrip' window. It has a tree view on the left with a list of 15 items: 0. par swap rate list, 1. value (settlement) date, 2. interest rate swap value table, 3. structure, 4. interpolation method, 5. exchange of principal, 6. margin above or below a floating rate, 7. FX spot - pay / receive, 8. business day convention (see Glossary) - pay leg, 9. direction for date generation - pay leg, 10. cash flow frequency - pay leg, 11. odd date list - pay leg, 12. accrual method - pay leg, 13. holiday list - pay leg, 14. notional principal - pay leg, 15. discount factor curve - pay leg. The selected item is '1. value (settlement) date', which has a source cube defined as 'SourceCube(Def) Def(Date,1,100,(Currency))' and a calculation 'Calc(DFCurve) DF(Curve)'. On the right, there are 'Item Properties' for the selected item, including 'Cube: Def', 'Format Reference As: Source', 'Modifiers: Truncate at 1st zero, Allow Zeros, Skip Zeros', and 'Reference: Def(Date,1,100,(Currency))'. There are also 'Rows and Columns' and 'Pages' sections.

Properties of a component using the FINCAD swap function in kACE®

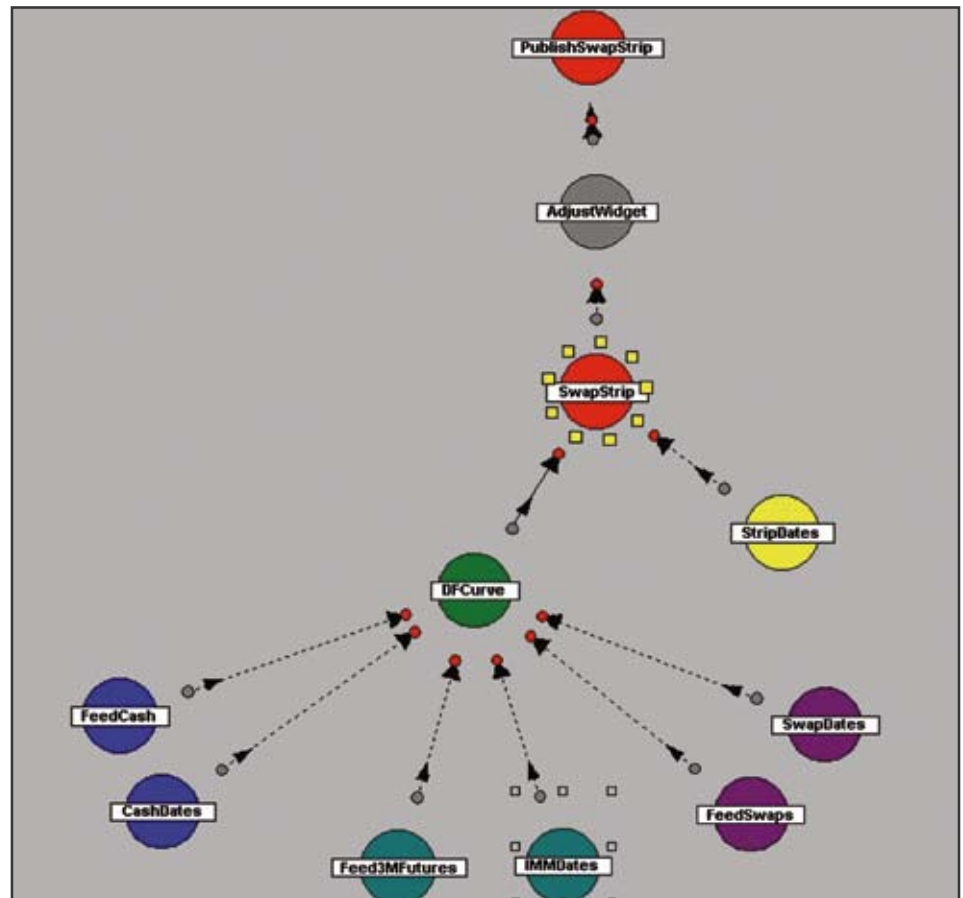
the ability to build an alternate model using the basic functions. Now, every single FINCAD function is available to every Kalahari customer that uses kACE®. Some of the more common financial functions that Kalahari and their customers use are the yield curve functions, date handling functions and par swap functions. Graham Mansfield, Deputy Managing Director

at Kalahari stated, "Lately our customers have been taking advantage of the bond functions and commodity options provided by FINCAD Analytics. By not having to build these functions ourselves, we have saved a tremendous amount of time and money."

Case Study *continued*

TECHNOLOGY

kACE® is a Microsoft® Windows NT product and runs on all major market platforms, with real time data being collected by the system. kACE®'s underlying program is written in C++, and it exposes VB, Java and COM objects, enabling developers to build distributed applications. Developers can use Microsoft XL formulas, JavaScript, Visual Basic Script as objects, and their application is network enabled using TCIP addressing. As part of the kACE® solution, Kalahari has an internally developed scripting language, which enables programmers to quickly modify their financial applications, without having to rebuild or reinstall major software components. Also, kACE® can be run as a client/server or peer-to-peer application. kACE® is embedded with FINCAD's industry standard financial analytics from FINCAD Developer.



A sample model of a discount factor curve in kACE®

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