

DOcrossrates

A technical demo of
DOcloud on BlueMix

<http://docrossrates.eu-gb.mybluemix.net/>



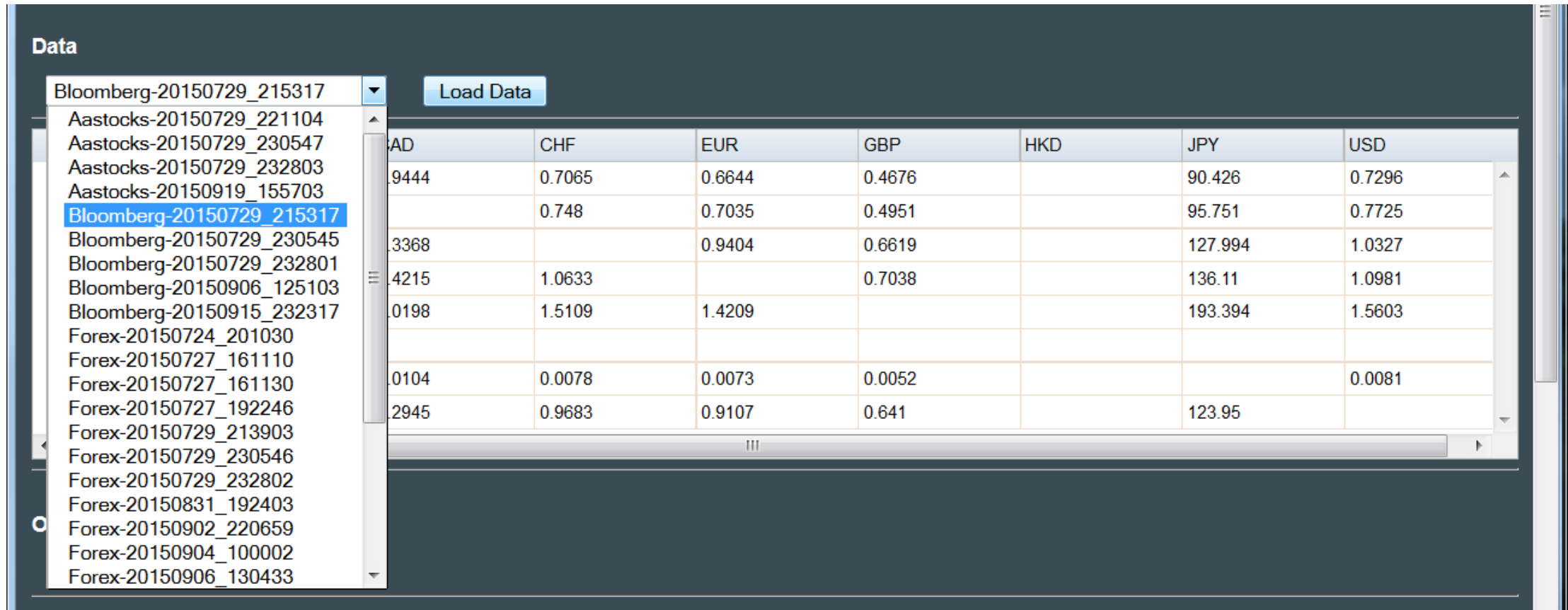
Application context and idea

- Currencies can be traded at online platforms. Their exchange rates change continuously. Are the exchange rates sometimes such that multiple exchanges at the same time yield some positive gain?
 - See e.g. https://en.wikipedia.org/wiki/Foreign_exchange_market
- I.e.: could an exchange like 1000 EUR \rightarrow x USD \rightarrow y JPY \rightarrow z EUR executed at the same time result in $z > 1000$ EUR?
- We try to find such positive gain circles using CPLEX optimization.
- The demo application is running on IBM BlueMix and uses DOcloud!

Demo Walkthrough

#1 Load Rates

- Select a cached data set (taken from the respective online resource) and press Load Data.



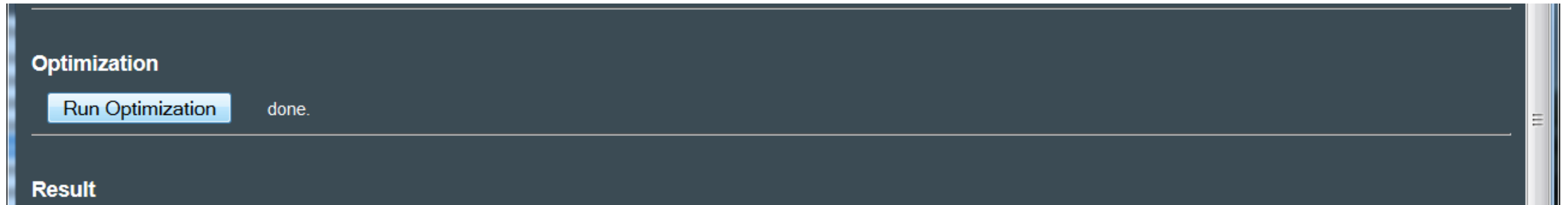
The screenshot shows a software interface with a 'Data' section. On the left, a dropdown menu lists various data sets, with 'Bloomberg-20150729_215317' selected and highlighted in blue. To the right of the dropdown is a 'Load Data' button. Below these elements is a table with columns for different currencies: CAD, CHF, EUR, GBP, HKD, JPY, and USD. The table contains numerical values for each currency, with some cells being empty. The selected data set is highlighted in the table as well.

	CAD	CHF	EUR	GBP	HKD	JPY	USD
Bloomberg-20150729_215317	0.9444	0.7065	0.6644	0.4676		90.426	0.7296
Bloomberg-20150729_230545		0.748	0.7035	0.4951		95.751	0.7725
Bloomberg-20150729_232801	0.3368		0.9404	0.6619		127.994	1.0327
Bloomberg-20150906_125103	0.4215	1.0633		0.7038		136.11	1.0981
Bloomberg-20150915_232317	0.0198	1.5109	1.4209			193.394	1.5603
Forex-20150727_161110	0.0104	0.0078	0.0073	0.0052			0.0081
Forex-20150729_213903	0.2945	0.9683	0.9107	0.641		123.95	

Demo Walkthrough

#2 Run Optimization

- Click Run Optimization



- And wait for about 10 seconds...

Demo Walkthrough

#3 Analyze Results

- The table shows which currencies should be exchanged (at the given rates). Here:
AUD -> CHF -> USD -> EUR -> ...
- This yields a positive gain of 0.5816% !

Result

Summary:

Name	Value
gainPercent	0.5815614851786499

Details:

From,To	AUD	CAD	CHF	EUR	GBP	HKD	JPY	USD
AUD			0.7065					
CAD	1.0589							
CHF								1.0327
EUR							136.11	
GBP		2.0198						
HKD								
JPY					0.0052			
USD				0.9107				

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