Han Wu

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Career Summary

I joined the graduate programme at Citi in 2009, and worked in front-office banking environment to provide high quality trading platforms using C# .Net technology for the FX options trading desks. Over the course of 5 years, I acquired a solid understanding of option pricing model, thanks to my active involvement in the development of the pricing engine and the volatility publisher for our e-trading platform.

Since December 2014, I have been working in Brevan Howard Asset Management as a Quantitative Developer. My main responsibility involves maintaining a trade reporting process, various processes that sends analytical charts and tables to traders via emails, and daily BAU processes such as AppStarter. I am also in charge of the overall build and deploy process and ensure all developers follow the same enterprise standard.

I am a stronger believer of the Agile software development methodology, especially the importance of design before implementation, and unit tests and automatic integration tests in discovering bugs in the first possible phase.

Key Skills

Language and framework

C#, WPF, Unity, Prism, WCF, ASP.NET MVC Framework, CodeDOM, Python, SQL, C++

IDE and other development tools

Visual Studio 2013, SQL Server Management Studio 2014, PyCharm, NuGet, Subversion, TeamCity, Jenkins

3rd Party Software

GemFire, Tibco EMS, Tibco RV, Bloomberg desktop API and PerSecurity API

Education

Oct 2006 – Jun 2009	University of Cambridge, MA (Hons) in Computer Science, Class 2.I
Jan 2004 – Dec 2005	Hwa Chong Institution (College Section), Singapore A in all A-Level subjects: Maths, Further Maths, Physics and Chemistry

Dec 2014—Present Brevan Howard Asset Management, Quantitative Developer

Since December 2014, I joined Brevan Howard as a Quantitative Developer. I have been working on various individual projects:

- TradeReporter: a trade reporting tool which maps non-intuitive Murex fields into human-readable fields, and create various views for different trade types
- CurveService: a curve publishing tool which aggregates various futures and swaps from Reuters and does live curve fitting.
- FxAnalysis: a C# analytical tool which analyses historical market data from Bloomberg, send the reports in charts and tables to traders, strategist and economists via emails.
- AppStarter: a tool which restarts Excel spreadsheets for trades every morning before they come in to work. It has a real-time WCF service and a GUI client written in WPF.
- Involved in the C++ quant library development to implement some new methods
- Designed and implemented a C# wrapper for the C++ quant library using CodeDOM
- Python development: the aim is to replace Excel-based batch jobs due to various powerful financial libraries in Python. I am also working on the migration of some C# html and email features over to Python.
- Build and deploy: I have been working on improving the process, as well as extending the tool to cover Python projects.

Sep 2009—Dec 2014 Citigroup FX Options Technology, Assistant Vice President

Citi FX Options e-Trading Platform – Volatility Publisher

Since May 2011, I have been working on a new **volatility publisher** to generate price for FX option e-Trading platform. This volatility publisher uses **SABR model** – a highly parameterised, time-aware and time-decaying volatility model with centralised event management system. We have also introduced a sophisticated **correlation model** for the cross pairs.

This client application is developed in C# .NET 4.0 with Prism/Unity framework and SyncFusion grid (WinForm). We developed a data-driven "presentation framework" on top of templated SyncFusion grid controls to provide a generic look-and-feel on presentation of data in any format. It connects to market data GemFire service and subscribes to vol updates from various sources using Tibco EMS.

Key Responsibilities:

- Design and implement a trader-friendly volatility publishing user interface
- Present volatility references sourcing from brokers or CME contracts to help traders mark the surface
- Automate event importing from Bloomberg and other sources
- Validate the correctness of the volatility surface before publication
- Set up and maintain the continuous build environment using TeamCity, making sure that there is sufficient test coverage on the code base.
- Manage the release process of the application. The application is deployed using Click-Once technology. My major contribution is the introduction of a single-click UAT/Staging deployment on TeamCity.

Citi FX Options e-Trading Platform – Pricing and RFQ

The above application has also been extended to a pricing and RFQ platform for traders. Within the FX Options team, we have a common object model, which uses **code generation** (CodeDOM) on a schema declaring the name object and its parameter names and types. It has the following advantages:

1. The object strongly typed, yet can have a dictionary/dynamic behaviour without reflection
2. We can control the serialisation and deserialisation of the object model easily. So far, we have implemented XML, Json and Protocol Buffers.

The pricing platform also has the ability to price large portfolios, such as Accumulators, on a Symphony grid in parallel. For the RFQ platform, it uses Tibco EMS to send RFQ messages between the client and the RFQ server.

Key Responsibilities:

- Design and implement a trader-friendly pricing user interface, allowsing them to test the option pricing locally before publishing the volatility surface.
- Ensure the RFQ process is smooth and error-free. Provide different quoting mechanisms for vanilla RFQs and exotic RFQs to meet traders' requirement to quote the best price.

Citi FX Options Online Pricing Service

From December 2009, I was in charge of the development and maintenance of the pricing service behind our option online platform. The pricing service was written in C# 2.0 using .NET remoting, which wraps around our quant library to price a variety of options. The first phase of the e-Trading decaying at-the-money volatility model was implemented in the pricing service, before replacing with the latest velocity option 2.0 pricing engine in 2012.

Key Responsibilities:

- Optimise option pricing performance.
- Implement pricing for new option products.

Jun – Aug 2008 Citigroup Technology Division Summer Analyst Programme

I was involved in a start-up project to develop a FX options trading platform using C#. Our team employed test-driven development (TDD) practice and was able to deliver the first live version in merely 2 months. My main focus was to develop a market view component, which processes and presents the underlying market data. Apart from writing code, I have also learnt from my manager about project planning and how to enforce the TDD practice into daily development work.

Jun – Aug 2007 Cambridge Undergraduate Research Opportunities Programme (UROP)

Topic: Optimising the Allocation of Natural Sciences Lab Groups

This was a 10-week Java project based on Spring framework, whose aim is to allocate freshers into different lab groups using Genetic Algorithm. My task is to optimise the existing code such that it is able to run as multiple processes on the grid and communicate between processes to achieve the optimal result. That was achieved by using a third party library called Message Passing Interface in Java (MPJ) in order to send the optimal result pool across each node in the grid.