Utilization of XBRL Technology in Thomson Reuters

Haksu Kim, CFA & CPA

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Who is Thomson Reuters?

Why XBRL in Thomson Reuters?

XBRL Parser Development with Rivet Software

XBRL Parser Applications in Thomson Reuters
Who is Thomson Reuters?

Premier Information
- Financial
- Media
- Healthcare
- Science
- Legal
- Tax & Accounting

By Divisions
- Professional
  - Legal
  - Tax & Accounting
  - Health & Science
- Markets
  - Sales & Trading
  - Enterprise
  - Investment & Advisory
  - Media

⇒ Gathering/Processing/Delivering Information for Customers
Why XBRL in Thomson Reuters?

**XBRL Benefits**
- Fast
- Accurate
- Cheap
- Scalable

**Information in Thomson Reuters**
- Valid properties to be competitive
  - Analyzing, Modeling and Trading
  - Media
XBRL in Markets Division

- Migration to Low-Cost Countries to be Competitive in Recent Years
  - Same Data at a Cheaper Price
- Taking the Benefits of Internet-Based Communications
  - Instant Receipt of Data Files
  - Fast Data Processing
  - Quick Delivery of the Output to Clients

- CSV to XML to XBRL

→ Automation Opportunity
XBRL Parser Development with Rivet Software

Overall Workflow for Data Processing
1. Document Feeds
2. Parsing the Data
3. Loading the Data
XBRL Parser Development with Rivet Software

Workflow for Fundamental Dataset

[Diagram showing the workflow process]

- Start: Document Library
- FileWatch:
  - Notification of XBRL CSV Loading Status
- Data Locator:
  - CSV Generated Output
- DoPiUs:
  - Tables TBA to capture XBRL Tags
- Potential: Rivet Existing Application
- Products: data files, APIs, etc.
- End

Processing:
- US, Chinese, Japanese
- Spanish & Korean
- Market XBRL Documents

Exceptions:
- Reviewing XBRL Analyst
- Potential Document Viewing XBRM Tag Mapping Manual Override Tool
Overall Workflow for Data Processing

1. Document Feeds
2. Parsing the Data
3. Loading the Data

Web based User Tools
- Review Loaded Data
- Map XBRL elements to Thomson Reuters Internal Account Codes
- Review Data Load Statistics
- Export Data (CSV, XML)

XBRL Parser Development with Rivet Software

- XBRL Instance Documents
- XBRL Taxonomies (Base & Company Extended)
- Parsing XBRL Documents
- XBRL Document Loader (Capable of Scheduling/Automation)
  - XBRL Taxonomy Instance Parser
  - Multi-Threaded Taxonomy Caching Engine
  - Dispatcher Loader Service
- Data Writer (Rivet Database)
- Store XBRL Data in Relational Database
- Rivet XBRL Database
- Exported CSV/XML Files
- Thomson Reuters Database

Markets

Intranet
XBRL Parser Applications in Thomson Reuters

• Media: Headlines automatically
• Enterprise: Automatic Datafeed to Clients’ Analytical Models
• Investment & Advisory: Gradual release of data
  • Key items: immediate releases
  • Full set of data: After merging with other data and checking integrity
Benefits from Data in XBRL

• Fast: Incoming feeds to customers’ applications

• Accurate
  – No human interruption
  – No language constraint

• Cheap
  – Saving production costs

• Scalable
  – Not limited to the financial information of publicly listed companies
    • Call reports from FDIC and its equivalents from other countries
    • Private companies’ data (Germany, Netherlands)
Challenges in Using Data in XBRL (1)

• Not Many Countries on Board yet
  – Japan, Korea, China, Israel
  – Considered as a supplemental data delivery and XBRL file is slower than other formal filings

• Not Sufficient Infrastructure
  – Taxonomy development is slow
  – Taxonomy is limited to the data items on the face of financial statements
  – Taxonomy is limited to quantitative “financial” information
  – No or not enough facility for aggregation/distribution of filings by companies
Challenges in Using Data in XBRL (2)

• Inconsistency in File Format
  – Table format
  – Multiple sets of data in a file (parent only vs. consolidated)

• Significant Upfront Investment
  – Understanding the technology
  – Management’s hesitance of investing in unsettled technology

• Legacy Infrastructure is Not Ready to the New Technology
  – Storage/delivery
  – Products
  – Users’ understanding/acceptance
CONTACT FOR MORE INFORMATION

Haksu Kim, CFA & CPA
VP – Global Fundamentals
Haksu.kim@thomsonreuters.com

Geoffrey M Horrell
Customer Proposition Manager
Geoffrey.horrell@thomsonreuters.com