The Global Standard for Business Research

wrds
WHARTON RESEARCH DATA SERVICES

VALUE PROPOSITION

2020
Wharton Research Data Services (WRDS)

1. WRDS Snapshot
2. Who we serve
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1. WRDS Snapshot
Single source for leading global and research databases

• Gold standard for global financial research
• Variety of Disciplines: Accounting, Banking, Economics, Finance, Insurance, Marketing, Statistics
• Entity Management and Data Linking: e.g. CRSP (stock prices) & COMPUSTAT (Fundamentals)

Internet-based and individual accounts to access from anywhere. Flexible Delivery & Access Options

• Web Queries: Easy-to-Use, Point-and-Click Interface
• WRDS Cloud – Scalable High Performance Computing & Storage
• Unix Terminal Connection

Full-time Research, Support & E-Learning

• Ph.D. Research and Expert Technical Support
• Online Help and 24/7 System Monitoring
• Extensive E-Learning Live and On-Demand
• Comprehensive Knowledge Base
• Proprietary Research Applications, Programs and Utilities
RESEARCH BENEFITS

- WRDS significantly reduces time to data discovery, analysis and publication, greatly increasing researcher productivity.

- WRDS has been able to improve research efficiency and speed time required for academic research by as much as 40% vs. similar institutions that do not use WRDS.

- Intuitive and flexible interface for all constituents

- Extensive suite of sample programs to assist customized, personalized and complex research analyses

- Comprehensive support from expert personnel including Ph.D.’s and data specialists

- Integrated access to numerous datasets across multiple disciplines
ADDITIONAL BENEFITS

• Data validation and integrity, ensuring timely updates and ready-to-use standardized data immediately available for analysis.

• Multiple interfaces (web, analytical software, computing platform) and teaching tools provides ease of use and flexibility.

• Proprietary linking routines to integrate datasets, sample programs, and data linking utilities speed research time and productivity considerably.

• Valuable recruiting tool to help attract and retain leading faculty and other thought leaders to your institution.

• Prestige of providing the industry gold standard for global financial research that the leading global business schools provide to their faculty and students.
Who we serve
Wharton Research Data Services (WRDS)

- **Over 50,000 Users in 35 Countries**
- **500+ Subscribers** including:
  Harvard University, Stanford University, University of Chicago, Columbia University and most major business schools globally
- **45+ Data Vendors** including:
  Capital IQ, CRSP, NYSE Euronext TAQ, FactSet and Refinitiv
- **300+ Terabytes of Data and Fast Cloud Computing Environment**
- **PhD Level Research Support**
Data Content
COMPANY FINANCIALS

FINANCIAL STATEMENTS
- S&P Compustat
- Thomson Reuters Worldscope
- Factset Fundamentals
- BvD Amadeus
- BvD Osiris
- PACAP Pacific Basin
- CSMAR Financials — China Stock Market & Accounting Research
- S&P Capital IQ Capital Structure
- Calcbench As-Reported Filings & Footnotes

AUDIT & REGULATORY FILINGS
- WRDS SEC Analytics Suite
- Audit Analytics
- S&P Filings Database

BANKS
- S&P Compustat Bank
- SNL
- BvD Orbis Bank Focus
- Bank Regulatory Call Reports — Federal Reserve Bank of Chicago
- FRB H15 Interest Rates
- S&P Compustat Segments
- Thomson Reuters Worldscope Segments

SEGMENTS / INDUSTRY DATA
- S&P Compustat Industry-Specific
- Thomson Reuters I/B/E/S KPI
- Factset Revere
- BvD Isis Insurance Companies

COMPENSATION
- S&P Compustat Execucomp
- S&P Capital IQ People Intelligence
- ISS Incentive Lab
- BoardEx
- MSCI GMI Ratings

INTELLECTUAL PROPERTY
- ktMINE

FINANCIAL MARKETS, PRICES, RETURNS

STOCK PRICES
- CRSP
- Compustat
- Factset
- Thomson Reuters Worldscope
- LSPD - London Share Price Database
- CSMAR Trading - China Stock Market & Accounting Research
- OTC Markets
- PACAP Pacific Basin

ANALYST ESTIMATES
- Thomson Reuters I/B/E/S
- Zacks

INTRADAY TRADES AND QUOTES
- NYSE TAQ
- IIS M
- GovPX

INDICES AND FACTORS
- CRSP Indices
- S&P Compustat
- Fama French & Liquidity Factors
- IHS Global Insight
- Markit Securities Finance
- Market Credit Indices

BONDS AND FIXED INCOME
- Mergent FISD
- TRACE Bond Transactions
- MSRB Muni Bond Transactions
- WRDS-Reuters DealScan
- CRSP Treasuries
- GovPX
- Markit Securities Finance
- S&P Capital IQ Credit Ratings
MUTUAL FUND / HEDGE FUND / ETF RETURNS
- CRSP Mutual Funds
- MFlinks
- Morningstar CISDM Hedge Funds
- HFR - Hedge Fund Research
- Thomson Reuters Lipper (Tass) Hedge Funds
- Eureka Hedge
- ETF Global

DERIVATIVES / OPTIONS
- Optionmetrics
- Markit Credit Default Swaps
- CBOE Indexes

REITS
- CRSP Ziman REITs

CURRENCY EXCHANGE RATES
- FRB Foreign Exchange Rates
- S&P CompuStat Currency Conversion Tables

OWNERSHIP
- Thomson Reuters (SP) Mutual Fund Holdings
- Thomson Reuters (SP) 13F Holdings
- Thomson Reuters (OP) Global Ownership
- Factset Ownership (Lionshares)
- CRSP Mutual Fund Holdings
- MFlinks
- ETF Global
- Thomson Reuters Insider Transactions
- 2IQ Global Insider Transaction
- ISS Directors
- MSCI: GMI Ratings - Directorships

MERGERS & ACQUISITIONS
- Thomson Reuters SDC
- S&P Capital IQ Transactions
- Levin Associates Healthcare M&A

ESG: ENVIRONMENTAL, SOCIAL, GOVERNANCE
- Sustainalytics
- Reprisk
- MSCI: KLD
- MSCI: GMI Ratings
- ISS Governance
- ISS Directors
- ISS Voting Analytics
- Boardex

ECONOMICS
- IHS Global Insight
- FRB H10 and H15 Interest Rates
- Penn World Tables

MARKETING
- comScore Web Behavior
- Infogroup
- IRI Marketing Factbook (Legacy)

NEWS
- RavenPack News Analytics
- S&P Capital IQ Key Developments

HEALTHCARE
- American Hospital Association
- IMS – SK&A Office-Based Physicians
- ProPublica Dollars4Docs
- ProPublica Prescriber Checkup
- Levin Associates Healthcare M&A
- AHRQ HCUP
- AHRQ MEPS
- Clarivate Analytics
How WRDS works

• Type of accounts
• WRDS Reps
• Requesting an individual account
• First steps
Types of Accounts: All access is online and individual

**Faculty & Ph.D.s**
Unlimited access through the web, SSH, and/or FTP. Includes 10 GB of permanent disk storage.

**Research Assistant**
Available to graduate and undergraduate students performing research for a faculty member. Unlimited access via web, SSH, and/or FTP. Includes 10 GB of permanent disk storage.

**Master & Undergrad**
Available to full-time masters students of member institutions. Unlimited access via the WRDS website, no disk storage. Expire at the end of the semester.

**Staff**
Available for Staff members. Unlimited access via web, SSH, and/or FTP, and include 10 GB of permanent disk storage.

**Visitors**
Available for Visitor Faculty (non-permanent or part-time position, or those on a limited appointment). Unlimited access via web, SSH, and/or FTP, and include 10 GB of permanent disk storage.

**Class**
May be requested by standing faculty and are used to access the WRDS web interface. Primarily for student usage that is associated with a specific class and all students in the class share the same password.
The WRDS Representative

Who is the WRDS Rep?

- Subscribing institutions have at least 2 WRDS Representatives (Librarians).
- The role of the WRDS Representative involves a minor time but is essential in helping us to ensure an effective communication. The 4 responsibilities we ask of our Reps:
  
  o The WRDS Rep will serve as a liaison between the WRDS staff and the users (notices regarding system upgrades, addition of new vendors, scheduled maintenance, etc).
  
  o The WRDS Rep will monitor account requests by verifying that a requestor is indeed standing Faculty, a PhD student, authorized research assistant or staff member at the University. Whenever a user from a subscriber institution submits an account request, we will send an e-mail notification to the WRDS Rep. Then this person will go to the URL indicated in the message and follow the instructions to approve the request.
  
  o The WRDS Rep will disable accounts after users leave your institution. Extend expiration dates when necessary.
  
  o The WRDS Reps will notify department heads/chairs regarding WRDS administrative changes (i.e.: modification of WRDS fee structure, procedures, etc.).
How to Request an Individual Account

Once your institution is onboard, ALL affiliated profiles can follow these steps:

1 – Go to: Wharton.upenn.edu

2 – Click here:
Register for WRDS

Username

Required. 4 to 15 characters long. Lowercase letters, digits, and _ only. Must start with a letter.

Password

- Your password must contain at least 12 characters.
- Your password can’t be a commonly used password.
- Your password can’t be entirely numeric.

Password confirmation

Enter the same password as before, for verification.

First name

Last name

Email address

Please enter your institutional email address.

Subscriber

User type

The account type of this user.

Expiration date

2020-11-24

Department
Now, users will be able to access through their own usernames & passwords from anywhere in the world with internet connection: https://wrds-www.wharton.upenn.edu/
## First steps: our Homepage

### Main Tool Bars

- **Get Data**
- **Analytics**
- **Classroom**
- **Research**
- **Support**

### Subscriptions

<table>
<thead>
<tr>
<th>Category</th>
<th>Subscriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRDS Internal</td>
<td>2iQ</td>
</tr>
<tr>
<td>2iQ</td>
<td>American Hospital Association</td>
</tr>
</tbody>
</table>

**View the subscriptions in your institution; unsubscribed databases are shown in GREY**

### WRDS News

1. **21 Jan** - Are healthcare wraparound services effective in reducing costly hospital ...
   - **January 21st, 2020**

2. **14 Jan** - Analyze Trends on 9,400+ Companies using S&P Global Transcripts ...
   - **January 14th, 2020**

3. **02 Dec** - What is the Impact of Machine Learning on Mortgage ...
   - **December 2nd, 2019**

### Events

1. **26 Feb** - ICAL (International Conference of Asian Libraries)
   - Lucknow, India

2. **11 Mar** - SOUCABL (Southern University and College Academic Business Librarians Conference)
   - Athens, GA
Get Data tab

Find products and vendors your institution is subscribed to, including any trial subscriptions.
DOWNLOAD DATA USING OUR WEB QUERY

Additional information about S&P Compustat database

Step 1: Choose your date range.

Date Variable:

Date range

2010-01 to 2020-02

Step 2: Apply your company codes.

Select an option for entering company codes

- Company Codes
Analytics tab

Designed to improve efficiency and avoid creating sophisticated programs

U.S. Daily Event Study
Investigate abnormal stock returns/volumes around event dates by uploading your own "events" file, or analyzing reaction to firm-specific events from Capital IQ's Key Development database.
- Instant visualization of the effect of events on U.S. equities.
- Output includes statistics, plots.

SEC Filings Search
Use this powerful research platform to search the contents of the most commonly used SEC filings—over 3.4 million reports—filed by more than 94 thousand companies.
- Easy-to-use web queries.
- Daily updates.
- Links to original HTML and text files.

Intraday Indicators
Stock specific daily and intraday (5 min, 15 min and 30 min) indicators created from the TAQ intraday dataset.
- Stock specific daily and intraday (5 min, 15 min and 30 min) indicators.
- Requires subscription to TAQ dataset.

Financial Ratios: Firm Level
With the Financial Ratios: Firm Level tool you can access over 70 pre-calculated financial ratios for all U.S. companies across eight different categories.
- Calculates ratios most commonly used in accounting and finance research.
- Monthly time series of financial ratios per company.

Beta Suite by WRDS
Beta Suite is a powerful engine allowing you to calculate stock level alpha and betas on various common risk factors.
- Daily, weekly, or monthly return frequencies.
- Select from four risk models for regression.

U.S. Intraday Second-by-Second Event Study
Conduct a high frequency intraday event study by utilizing underlying NYSE Trade and Quote (TAQ) data. Options include uploading your own "events" file, or using corporate and macro-economic news events provided by RavenPack News Analytics database.
- Second-by-second effect of events on stock price.

Linking Suite by WRDS
Link tables between the most frequently-used databases on the WRDS platform:
- U.S. corporate bond data to equity data from CRSP.
- IBES TICKER to CRSP FERMNO.
- OptionMetrics SECID to CRSP FERMNO.
- Daily TAQ symbol root to CRSP FERMNO.
- TAQ symbol to CRSP FERMNO.

International Event Study (Compustat Global)
Expand global market research using security returns directly from Compustat Global and index returns computed by WRDS from underlying Compustat Global data. You can upload your own "events" file, or use corporate events from Capital IQ’s Key Development database.
- Instant visualization of the effect of events on stock price.

More »
Classroom tab
Teaching and learning toolkit designed for faculty use in the classroom.

Getting Started
This teaching tool guides your students through their first use of the WRDS website. With it, you can:
- Introduce new users to WRDS
- Provide an overview of how queries are organized
- Demonstrate a sample query to retrieve pricing data

What Data is in WRDS?
Learn about WRDS' data offerings and how to navigate them effectively. Acquaint students with the breadth of data sets in WRDS, including:
- Financial
- Economic
- Marketing
- Public

Finding the Data You Want
WRDS contains a tremendous variety of data. This exercise covers the following:
- How data is categorized
- Techniques to locate data
- Resources that index WRDS' data

Understanding Identifiers
This exercise describes the major descriptors used to identify both companies and securities in WRDS, along with examples of each. Students will be introduced to the following:
- Difference between header and historical identifiers
- Issues vs. companies
- Dates of applicability

Identifiers: Tracking Companies
How do we account for changing company names, tickers, mergers, acquisitions, and bankruptcies in various datasets? Students will learn about:
- Company identifiers in Finance and accounting datasets
- Which company identifiers change and which stay the same

Using the CRSP/Compustat Merged (CCM) Database
The CRSP/Compustat Merged database provides a convenient way to link CRSP market data with Compustat fundamentals.
- Navigate challenges to linking CRSP and Compustat data
- Use a web query to access Compustat data using CRSP’s PERMNO/PERMCO

Using the IBES CRSP Linking Table
Researchers can easily merge IBES estimates with CRSP stock return data using a proprietary linking table that matches entities between the two.
Researchers will learn:
- The methodology behind the IBES CRSP Linking Table
- How to run a web query to match CRSP PERMNO with IBES Ticker

Using SAS Studio
SAS Studio is a revolutionary tool which gives students the power of interactive SAS, but within a browser window. With this teaching tool students will:
- Launch SAS studio from the WRDS web interface
- Write and read a basic data step in SAS Studio
- Export a table in SAS Studio
Applications, macros, research guides, and sample programs to assist you in replicating well-known empirical papers and can serve as a starting point in your own original research.

WRDS Research

The WRDS Research page is intended to help you get started with your research using WRDS data. The WRDS Research Applications, SAS macros, research guides, and sample programs will assist you in replicating well-known empirical papers and can serve as a starting point in your own original research.

Introduction

The WRDS research page is meant for all levels of users: new users can start with the SAS programming tips and sample programs for a database of interest, while research applications and SAS macros are geared more toward experienced researchers as they are based on more advanced empirical concepts and SAS features. They can be used, for example, to build accurate historical links between different data sources, to process large datasets or replicate some widely cited research papers.

While we make our best effort to provide high quality applications, we recognize that there is always room for improvement, especially given continuous change in data needs and reporting environments. We appreciate any feedback on existing research tools and welcome suggestions on future potential research-related additions.

Research Applications

To improve efficiency and quality of empirical research, WRDS replicated widely-cited papers that represent various areas of research. As transparent and ready-to-use algorithms, such applications cover a variety of topics from portfolio construction, earnings surprise calculation, institutional ownership ratios to deriving NBBO, signing trades, and option pricing. These sample source codes offer users the flexibility to customize them to address their specific research needs.
**Support**

Welcome to the WRDS Support Section. Learn about the available data sets at WRDS, how to access them remotely or on our WRDS Cloud high performance computing cluster, and how to use our data in your research.

### Getting Started
- Ways to use WRDS
- Account Types
- Library & Lab Access
- Terms of Use

### The WRDS Cloud
- Introduction to the WRDS Cloud
- Using SSH to Connect to the WRDS Cloud
- Programming Languages
- Running Jobs

### Data at WRDS
- Dataset List
- Manuals and Overviews
- Data Update Calendar
- Variable Search

### Sample Programs
- Comscore
- Compustat
- CRSP
- CSMAR

### Research Applications
- Portfolio Construction and Market Anomalies
- Python Replications
- Event Studies
- Linking Databases
Professional Research and Technical Support to assist our users with any difficulties including reviewing their programs, locating the right data for a particular research problem, and answering any other questions. Clicking the Support tab and ‘contact WRDS Support’ users will receive a response in less than 24h.
THANK YOU!