Data via WRDS

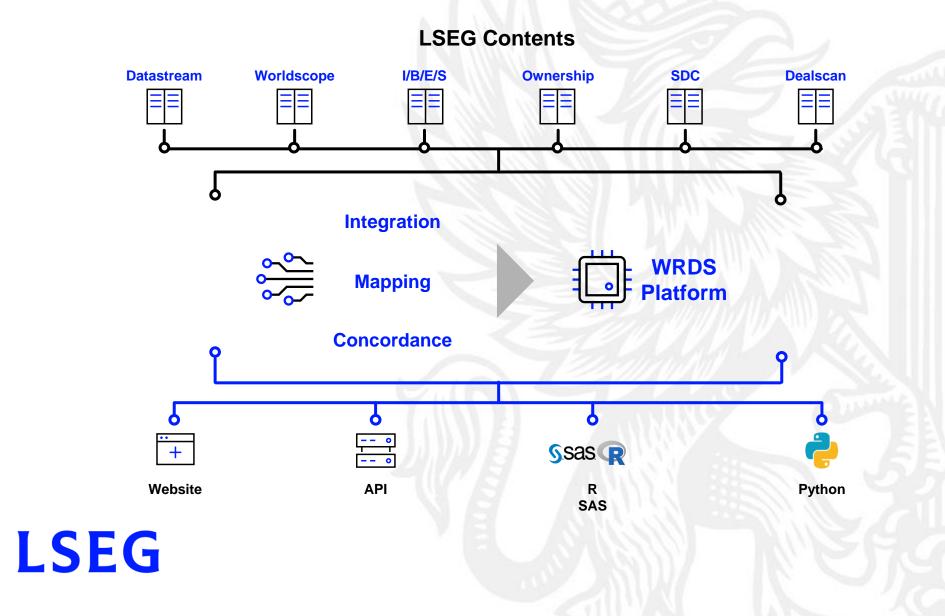
London Stock Exchange Group



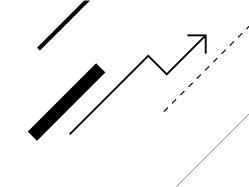


wnds wharton research data services

What do WRDS have



Agenda



- I/B/E/S introduction
- Use cases in academia
- Use cases in industry
- WRDS How to get help

- The Institutional Brokers' Estimate System (I/B/E/S), Refinitiv's global database of earnings estimates for publicly traded companies
- Contains analysts' forecast histories for more than 20 company financial metrics, such as EPS, revenue, target price, EBITDA and pre-tax earnings
- Including consensus estimates and detailed data
- The database also includes brokerage firms' operating recommendations (buy/hold/sell)



- History from 1976 for North American companies and 1987 for other markets
- More than 60,000 companies covered across 100 countries
- Active estimates on 22,000 companies from 900+ brokers



Number of account with IBES (%)

	o∼ tesla	ct Consolidated Aut	to & Truck Manufac	cturers	~	≈ ° ,	241.2 c USD	Vol 1,316,290	CAM 2 CCR 70							Updated: 22 Nov-2 Updated: 22-Nov-2 Detailed Est	2023 22:00:15 2023 22:00:15 timates ESTD
Overview N	lews & Research F	Price & Charts Esti	imates Financi	als ESG	Event	Ownership	Debt & Credit	Peers & Valu	uation Derivative	s Filings							
Template Sing	gle Measure/Single	Period 🗸														🔒 🗸 🖪 🗸	× ×
Measure Earn	ings Per Share	~	Period FY De	ec-23 (This Ye	'ear)	~	Update									Next Earning Report: 23	3-Jan-2024
Earnings Per Sh	nare, FY Dec-23 (This	Year)			SmartE	stimate® 🗸 🕴	Median 📕 Hig	ah/Low 🔲 Sto	ock Price 🗹 Chang	e Indicators 🗸							
		dated USD Per Share	i						martEstimate® 3.15							1	
Custom Calcul				\$ 3.15		90											- 3.50
SmartEstimate	,s			\$ 3.15		BO -											
Mean				\$ 3.15	27	70 -	/										- 3.45 m
Predicted Surp	prise %			0.12%	26	50		NL_		$ \cup$ \backslash	[]				\frown		- 3.40
Median				\$ 3.15	25	50 -			\mathcal{N}	,			ΛN				igs Pi
Low: \$ 2.56				High: \$ 3.60			/ _		V		h h h						- 3.35 er Sha
Analyst Revisio	on Summary				23	30						$ \land $					
4 of 32 estima	tes are new since:		3(0 Days Ago	22	20					Ì					~ /	Pert
Average Revisi	ion %:			-3.14%		10											- 3.25 Share
Mean change	since %:			-0.42%		00 -											
Stock price cha	ange since 30 days a	igo %:		13.78%											r i i i i i i i i i i i i i i i i i i i		- 3.20
						90 - 											- 3.15
						May			Jun-30		Jul-31		Aug-31	Sep-30	Oct-31		
M BOFA GL	OBAL RESEARCH	Murpny, Jonn J	****		15D	1M 3M 6	M 1Y 2Y	VUSTOM	-0.97%			3.11	5 19-Oct-2023		7.19%	1	11 1 1
	ed from the Mean by	I SEG (11 Analyst(s))															
Contribute		Analyst ▲	Earnings Accura	су		Current Estima	nte	% Di	ifference From Mean		Previous Estimate		Estimate Date	Review Date	Smart Estimate Weig	ht %	
JEFFERIES	S	- Houchois, Philippe	****				i 🔻	2.45	-22.24%			2.80	19-Nov-2023				a
GUGGEN	HEIM SECURITIES L	. Jewsikow, Ronal	****				E 🔻	7 3.20 🔁	1.57%			3.28	03-Oct-2023				x
MIRAE AS	SET DAEWOO	Park, Yeon Ju	insuf-hist				E 🔻	2.50 💫	-20.65%			2.90	19-Oct-2023				*
BERNSTE	IN	Sacconaghi, A.M	insuf-hist				E 🔻	2.57	-18.43%			2.82	18-Oct-2023	05-Nov-2023			
SPDB INT	ERNATIONAL SEC	Shen, Tony	insuf-hist				E 4	2.83 🛃	-10.18%			1.94	21-Jul-2023	20-Oct-2023			
HSBC		Tyndall, Michael J	insuf-hist				E	2.55	-19.13% 💻				08-Nov-2023				
CRISPIDE	A PRIVATE LIMITED	Viswanath, Harvi	insuf-hist				E 4	3.49 🔁	10.77%	_		3.38	08-May-2023	04-Aug-2023			a
SOUTHW	EST SECURITIES	Wang, Xiangjie	insuf-hist				i	🗸 2.76 🛃	-12.40%			3.26	25-Oct-2023				
HAITONG	INTERNATIONAL R	. Yao, Barney	insuf-hist				i	2.57	-18.43%			2.61	19-Oct-2023				
	IAL SECURITIES	Yu, XiaoLi	****				E 4	3.60 🔁	14.26%			3.44	26-Apr-2023				

Undisclosed 19-Oct-2023

Undisclosed

Undisclosed

insuf-hist

Undisclosed

Detail History Detail History	Analyst Estimates Global		
» Actuals	» Adjustments		
» Detail	» Detail - Excluded Estimates		
» Identifier	» Price Target	Recommendations Recommendations	Analyst Estimates Global
» Restated Actuals	» Stop Price Target	» Detail	» Detail Identification
» Stopped Estimate		» Stopped Recommendations	» Summary Identification
Information	Analyst Estimates Global	» Summary Statistics (Consensus Recomm	
» Daily Exchange Rate	» EURO Exchange Rate		
» Monthly Exchange Rate	» Report Currency		



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Summary History

Summary History

- » Actuals, Pricing and Ancillary
- » Company Identification

» Price Target

- » Summary Statistics
- » Surprise History

Analyst Estimates Global

- » Adjustment Factors
 » Company Level Footnote
 » Secondary Revision Momentum
 » Summary Statistics (2nd Mean)
- Unadjusted Summary

Unadjusted Summary

- » Actuals, Pricing and Ancillary
- » Summary Statistics
- » Surprise History



REFINITIV

1,1

- » Price Target
- » Summary Statistics (2nd Mean)

Unadjusted Detail

Unadjusted Detail

» Actuals

» History

» Restated Actuals

» Excluded Estimates
» Price Target
» Stopped Estimate

Analyst Estimates Global

IBES Academic Analyst Estimates Global **IBES Academic** » Detail History 9 » Information 4 » Recommendations 5 » Summary History 9 6 » Unadjusted Detail » Unadjusted Summary 5 **Detail History Detail History** » Price Target » Actuals » Adjustments » Restated Actuals » Stop Price Target » Detail » Detail - Excluded Estimates » Stopped Estimate » Identifier

Detail History - Detail File with Actuals

 Query Form
 Variable Descriptions
 Manuals and Overviews
 Knowledge Base
 Data Preview

Detail History - Detail File with Actuals

Step 1: Choose your date range.

The Forecast Period End Date is the ending month and year of the fiscal period to which the estimate applies. The Activation Date is the date that the forecast/actual was recorded by Thomson Reuters. The Announce Date is the date that the forecast/actual was reported. The Review Date is Most recent date that an estimate was confirmed as accurate. Note that for Long Term Growth estimates, you must NOT select "Forecast Period End Date" as the Date Variable in Step One or the query will not return any estimates.

Date Variable:

Announce Date, SAS Format (anndats)								
2020-01	to	2023-06						

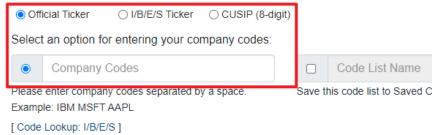
Step 2: Apply your company codes.

Using Ticker Symbols and CUSIPs in I/B/E/S Queries

You can further refine the search by selecting values for the IBES Universe (U.S. files), IBES Measure (e.g., EPS) and Forecast Period Indicator (FPI).

Note that for FPI = 0 (Long-Term Growth) estimates, you must NOT select "Forec the Date Variable in Step One or the query will not return any results (for FPI = 0).

What variable would you like to search by?



------Select Saved Codes List------

Choose from your saved code lists.

 \bigcirc

Browse... Company Codes Upload File

Upload a plain text file (.txt), having one code per line.

Search the entire database

This method allows you to search the entire database of records. Please be aware that this m time to run because it is dependent upon the size of the database.

Measures (non-EPS may be sparse)

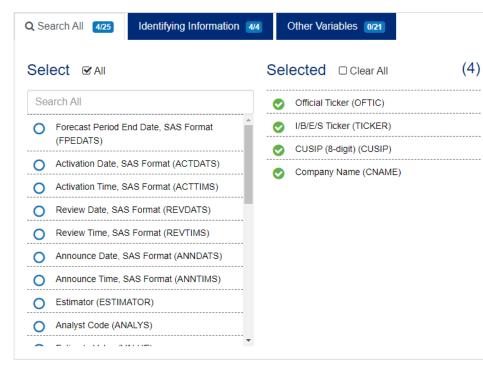
Earnings Per Share (EPS) Book Value Per Share (BPS) Cash Flow Per Share (CPS) Capital Expenditure (Non per share, CPX) Cash Earnings Per Share (CSH) Dividend Per Share (DPS) Earnings Per Share - Before Goodwill (EBG) EBIT (Non Per Share, EBI) EBITDA Per Share (EBS) EBITDA (Non Per Share, EBT) Enterprise Value (Non Per Share, ENT) Earnings Per Share - Alternate (EPX) Funds From Operations Per Share (FFO) GAAP/Earnings Per Share - Fully Reported (GPS) Gross Margin (Percent, GRM) Net Asset Value (Non Per Share, NAV) Net Debt (NDT) Net Income (Non Per Share, NET) Operating Profit (Non Per Share, OPR) Pre-tax Profit (Non Per Share, PRE) Return on Assets (Percent, ROA) Return on Equity (Percent, ROE) Revenue (Non Per Share, SAL)

Forecast Period Indicator (FPI)

Fiscal Year 1 (1) Fiscal Year 2 (2) Fiscal Year 3 (3) □ Fiscal Year 4 (4) ☐ Fiscal Year 5 (5) Fiscal Year 6 (E) Fiscal Year 7 (F) Fiscal Year 8 (G) Fiscal Year 9 (H) □ Fiscal Year 10 (I) Fiscal year without an actual (U) Fiscal year > 10 years in the future (X) Quarter 1 (6) Quarter 2 (7) Quarter 3 (8) Quarter 4 (9) Quarter 5 (N) Quarter 6 (O) Quarter 7 (P) Quarter 8 (Q) Quarter 9 (R) Quarter 10 (S)

Step 3: Choose query variables.

How does this work?



Step 4: Select query output.

How does this work?

Select the desired format of the output file. For large data requests, select a compression type to expedite downloads. If you enter your email address, you will receive an email that contains a URL to the output file when the data request is finished processing.

Compression Type

Our Compressed

O zip (*.zip)

O gzip (*.gz)

Output Format
 comma-delimited text (*.csv)
 Excel spreadsheet (*.xlsx)
 tab-delimited text (*.txt)
O HTML table (*.htm)
O SAS Windows_64 dataset (*.sas7bdat)
STATA file (* dta)

Date Format

YYYY-MM-DD. (e.g. 1984-07-25)
 MM/DD/YYYY. (e.g. 07/25/1984)
 DD/MM/YYYY. (e.g. 25/07/1984)
 YYYYMMDD. (e.g. 19840725)

E-mail	Edit Preferences	Custom Field
Save This Query (Optional)		Notes on this Query (Optional)

IBES Ticker Symbol	CUSIP/SEDO	L Official Ticker Symbol	Company Nam	Activation Date, SAS Format	Contributing estimator code	Analyst Code	Primary/Diluted Flag (Estimate Level)	Forecast Period Indicator	Measure (Data Type Indicator)	Estimate Value Cur
AAPL	03783310	AAPL	APPLE	1/3/2023	2283	71449	D	1	EPS	5.86
AAPL	03783310	AAPL	APPLE	1/4/2023	930	191412	D	1	EPS	6.5
AAPL	03783310	AAPL	APPLE	1/10/2023	3037	49552	D	1	EPS	5.82
AAPL	03783310	AAPL	APPLE	1/17/2023	898	78750	D	1	EPS	6.07
AAPL	03783310	AAPL	APPLE	1/17/2023	1951	107846	D	1	EPS	5.7
AAPL	03783310	AAPL	APPLE	1/17/2023	3374	110208	D	1	EPS	6.36
AAPL	03783310	AAPL	APPLE	1/19/2023	873	153096	D	1	EPS	6.1
AAPL	03783310	AAPL	APPLE	1/20/2023	3322	183383	D	1	EPS	6.37
AAPL	03783310	AAPL	APPLE	1/20/2023	2830	105094	D	1	EPS	6.18
AAPL	03783310	AAPL	APPLE	1/22/2023	157	109581	D	1	EPS	6.01
AAPL	03783310	AAPL	APPLE	1/24/2023	192	185400	D	1	EPS	6.09
AAPL	03783310	AAPL	APPLE	1/26/2023	79	108299	D	1	EPS	5.39
AAPL	03783310	AAPL	APPLE	1/27/2023	183	125669	D	1	EPS	5.73
AAPL	03783310	AAPL	APPLE	1/30/2023	282	108607	D	1	EPS	5.78
AAPL	03783310	AAPL	APPLE	1/30/2023	100	56181	D	1	EPS	6.07
AAPL	03783310	AAPL	APPLE	2/1/2023	4201	119509	D	1	EPS	6.26
AAPL	03783310	AAPL	APPLE	2/2/2023	282	108607	D	1	EPS	6.06
AAPL	03783310	AAPL	APPLE	2/2/2023	228	133343	D	1	EPS	5.92
AAPL	03783310	AAPL	APPLE	2/2/2023	3037	49552	D	1	EPS	5.87
AAPL	03783310	AAPL	APPLE	2/2/2023	873	153096	D	1	EPS	6.05
AAPL	03783310	AAPL	APPLE	2/2/2023	3322	183383	D	1	EPS	5.83

- Actuals: Actual values announced by listed companies (source: public company reports, official company vosites, news media)
- Measure: Estimated items, e.g. EPS is the most popular estimate
- Announce Date: Announcement Date is the date when the forecast or actual value is announced by Estimator or the company
- Activation Date: The activation date is the date on which the forecast or actual value is recorded by Refinitiv
- Forecast Period End Date: The last day of the forecast period, e.g., the last day of the fiscal year for 70% of companies is December 31st
- Forecast Period Indicator: For example, if 2021 is the most recent fiscal year for which financial results have been reported, FPI=1.2,3 for fiscal years 2022, 2023, and 2024, respectively
- Primary/Diluted Flags: appear in the stock forecast history database
- Primary/Diluted Indicator: appears in the identifier file (company level)
- Adjusted/Unadjusted: Forecasted items and price per share are adjusted for stock splits
- Estimator (Broker): Sell-side organization or forecast provider (3000+)
- Analyst: Analyst at the sell-side organization making the forecast (30000+)
- Estimate: Analyst's estimate of the company's projects for the coming period
- Detail Estimate: Estimates of individual analysts
- Consensus(Summary) Estimate: Average of all valid analysts' estimates for a specific company, time period (daily or monthly)

WRDS - I/B/E/S - Academia

		Ownership	Debt & Credit Peers & Valuation Der	rivatives Filings						
lultiples Momentum										0
unapies momentum										Excel Model
RKET DATA		ා CURRE			(CURRENT TARGET	PRICE & LT GROWTH		(③ RELATED APPS ③
AST	241.2	© MEAN		2.77	HOLD	CURRENCY		USD		Statement View
WK HIGH	299.29	STROM	NG BUY			MEAN		224.9	3.63	Recs & Target Price
WK LOW	101.81	BUY				# OF ESTIMATES		38		Company Guidance
PSIDE	-6.76	HOLD		21		нідн		380	6.46	Earnings Season
КТСАР (М)	766,756	SELL				LOW		24.33	0.8	Aggregates
V (M)	746,101	STROM	NG SELL			STD DEV		77.83	2.83	
TIMATES SUMMARY (MEAN)										0
nancial Period Relative	LTM			FY-1	FY0		FY1	FY2		FY3
eriod End Date	2023-11-22			2021-12-31	2022-12-31		2023-12-31	2024-12-31		2025-12-31
EVENUE	95818			53823	81462		97123	117516		142763
	18262			14027	20997		18013	23750		31751
BITDA	16056			11621 3644	19186 15216		15771	19705 13078		27085
BIT RE-TAX PROFIT	11516			3644	15216		10253	13078		19230
	12538			7654	14144		10665	13479		18375
	3.23			2.26	4.07		3.15	3.87		5
				1.63	3.62		2.65	3.42		5.04
	2.73		3.361							
REFERRED EARNINGS PS - REPORTED REE CASH FLOW	2.73			3483	7552		4251	6359		4269

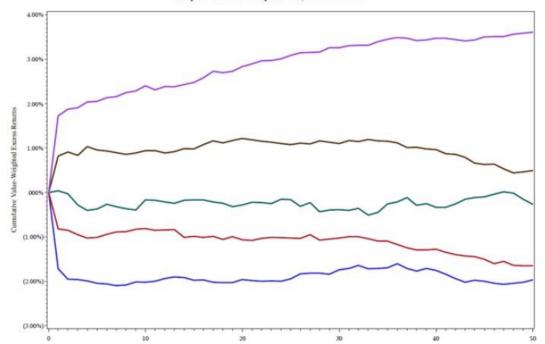
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WRDS - I/B/E/S - Academia

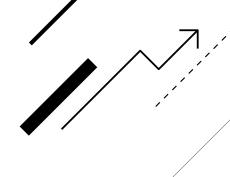
I/B/E/S + Pricing

Post-Earnings Announcement Drift https://wrds-www.wharton.upenn.edu/pages/wrds-research/applications/portfolio-construction-andmarket-anomalies/post-earnings-announcement-drift/

S&P 600 SmallCap firms







REFINITIV

WRDS - I/B/E/S - Industry

Contributor	Analyst	Current Recommendation	Rec. Date	Review Date	Analyst Rec. Rating		Price Target	▼ % Diff from Current Price	Price Target Date	LTG %	
	Andiyse	Current Recommendation	nee. Date		Overall	TSLA.O	USD	bin nom carrent i nce	The larger Date		
MORGAN STANLEY	Jonas, Adam	2-OVERWT/IN-LINE	10-Sep-2023	25-Oct-2023	****	****	▼ 380.00	57.55%	19-Oct-2023		2
MIRAE ASSET DAEWOO	Park, Yeon Ju	1-BUY 🖪	21-May-2021	19-Oct-2023	*** **	****	▼ 320.00 🎦	32.67%	19-Oct-2023		**
Undisclosed	Undisclosed				*** * *	****	▼ 310.00	28.52%	18-Oct-2023		
WEDBUSH SECURITIES INC.	lves, Daniel H	▲ 1-OUTPERFORM 🖪	09-Apr-2021	19-Oct-2023	*** **	****	▼ 310.00 🖪	28.52%	19-Oct-2023		2
KGI GREATER CHINA	Liang, Jennifer	▲ 1-OUTPERFORM 🖪	12-Jun-2023	19-Oct-2023	****	****	▼ 309.00 🖪	28.11%	03-Oct-2023		2
RBC CAPITAL MARKETS	Narayan, Tom	▲ 2-OUTPERFORM	12-Jun-2022	20-Nov-2023	****	****	▼ 301.00 🖪	24.79%	19-Oct-2023		2
ROBERT W. BAIRD & CO., INC.	Kallo, Ben J	1-OUTPERFORM	22-Oct-2020	24-Oct-2023	*** **	****	a 300.00	24.38%	17-Jul-2023		2
CHINA INTERNATIONAL CAPITAL CORPORATION (HONG KONG) LIMITED	Xue, Deng	2-OUTPERFORM	05-Jan-2023	22-Oct-2023	*** * *	****	▲ 295.00	22.31%	20-Jul-2023		X
PIPER SANDLER COMPANIES	Potter, Alexander E	2-OVERWEIGHT	10-Apr-2017	20-Nov-2023	****	****	~ 295.00	22.31%	19-Nov-2023		2
BOFA GLOBAL RESEARCH	Murphy, John J	▲ 3-NEUTRAL	14-Aug-2020	19-Oct-2023	****	****	▼ 290.00	20.23%	19-Oct-2023	8.30% ×	2
CRISPIDEA PRIVATE LIMITED	Viswanath, Harvind	▼ 3-HOLD 🎦	04-Aug-2023		****	****	▲ 285.00 🎦	18.16%	04-Aug-2023		2
SPDB INTERNATIONAL SECURITIES LIMITED	Shen, Tony	3-HOLD 📙	21-Jul-2023	20-Oct-2023	****	****	275.10 📙	14.05%	21-Jul-2023	-	*

PEER ANALYSIS FOR TESLA INC (TSLA.O)

Unsa	wed Template	V 🗄 V Add Column	∷≣ Add Rank	Edit Peers					
	Identifier (RIC)	Company Name	EV / Revenue (SmartEstimate ®) (NTM)	EV / EBITDA (SmartEstimate *) (NTM)	Price / EPS (SmartEstimate ®) (NTM)	Price / Cash Flow Per Share (SmartEstimate *) (NTM)	Price / Book Value Per Share (SmartEstimate ి) (NTM)	Price / Revenue (SmartEstimate) _(NTM)	Dividend Per Share Yield % (SmartEstimate®) (NTM)
	TSLA.O	Tesla Inc	6.46	38.46	63.23	43.34	12.05	6.64	0.0%
	F.N	Ford Motor Co	0.85	8.73	6.15	4.72	0.85	0.24	6.3%
	MBGn.DE	Mercedes Benz Group AG	0.96	6.13	4.93	3.27	0.64	0.41	8.3%
	VOWG_p.DE	Volkswagen AG	0.71	4.76	3.58	1.67	0.30	0.18	8.2%
	SPWR.OQ	SunPower Corp	0.56	20.02	NA	NA	1.95	0.44	0.0%
	RUN.OQ	Sunrun Inc	5.62	NA	NA	NA	0.40	1.04	0.0%
	SIEGn.DE	Siemens AG	1.84	9.81	13.86	10.11	2.20	1.45	3.4%
	051910.KS	LG Chem Ltd	0.93	6.43	12.67	4.87	1.10	0.59	2.2%

WRDS - I/B/E/S – Industry (Quant)



31-Dec-2021

1Y

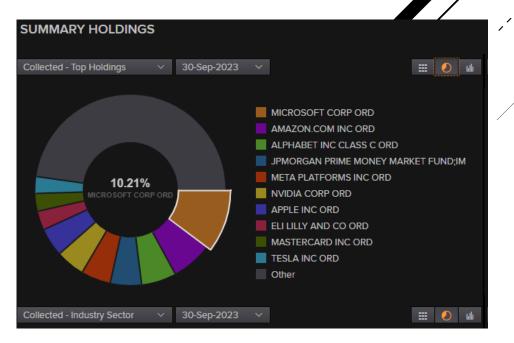
30-Dec-2022

2Y

31-Dec-2020

6M

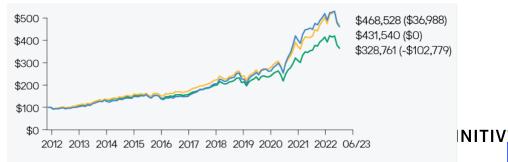
3M



Excess growth of \$100,000 over 10 years

Compared to benchmark and category average, in thousands (difference vs. benchmark)

- JPMorgan Large Cap Growth I Shares
- Morningstar category average



YTD

31-Dec-2018 31-Dec-2019

1M

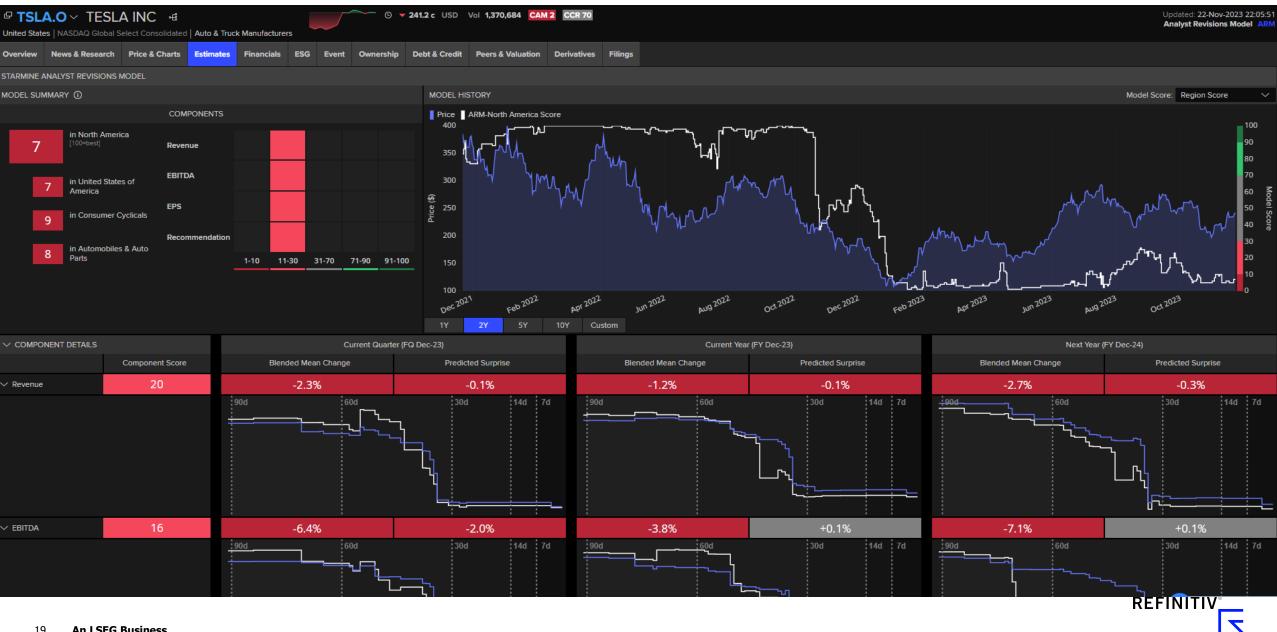
WRDS - I/B/E/S – Industry (Quant)

Magazine CNBC		1					
□ SBUX.O ~ STARBUCKS CORP	© ▼ 75.68 c USD	+2.18 2.966 % Vol 18,	591,499 CAM 40 (CCR 41			
Overview News & Research Price & Charts Estimates Financials ESG	Event Ownership Debt &	Credit Peers & Valuati	ion Derivatives	Filings			
Template Single Measure/Multi-Periods ~							
Measure Earnings Per Share \sim Periodicity Annual & Inte	im 🗸 Update						
▼ EARNINGS PER SHARE - Consolidated USD Per Share i							
							HISTORICAL
			FY 2023			FY 20	24
	Q1 Dec-22	i Q2 Mar-23	i Q3 Jun-23	Q4 Sep-23	i FY Sep-23 ····	Q1 Dec-23	Q2 Mar-24
# Estimates	27	25	27	28	31	25	26
SmartEstimate®	0.78	0.65	0.95	0.97	3.46	0.93	0.77
Mean	0.77	0.65	0.95	0.97	3.45	0.93	0.79
Predicted Surprise %	0.70%	0.42%	0.23%	0.07%	0.09%	-0.16%	-3.08%
High	0.81	0.71	1.00	1.02	3.49	1.01	0.90
Low	0.70	0.60	0.92	0.90	3.38	0.86	0.68
Guidance				-	3.40	-	-
Actual	0.75	0.74	1.00	1.06	3.54	0.90	0.68
EARNINGS PER SHARE ESTIMATE DETAILS 👔						L	
					are good. I would ussion because yo		

from plus 15% - 20% projection to these numbers.

Starbucks stock is now trading at roughly the same price at which it did some five years ago.

V° ▼



WRDS – How to get help

Resources:

WRDS Research: https://wrds-www.wharton.upenn.edu/pages/wrds-research/

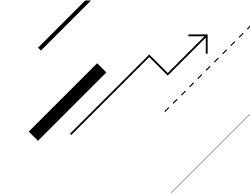
Variable Desc / Manuals / Knowledge Base https://wrds-www.wharton.upenn.edu/pages/about/data-vendors/thomsonreuters/#products

https://wrds-www.wharton.upenn.edu/pages/support/manuals-and-overviews/

https://wrds-www.wharton.upenn.edu/pages/support/support-articles/

Query Form Variable	Descriptions Manuals and	d Overviews Knowledg	e Base Data Preview
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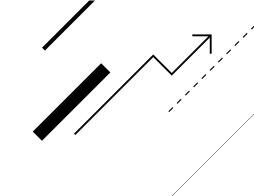
WRDS API: <u>https://wrds-jupyter.wharton.upenn.edu/</u>



WRDS – How to get help

WRDS support: wrds-support@wharton.upenn.edu

Emergency contact (your CSM): <u>liam.li@lseg.com</u>





Thank You

May 10, 2024



