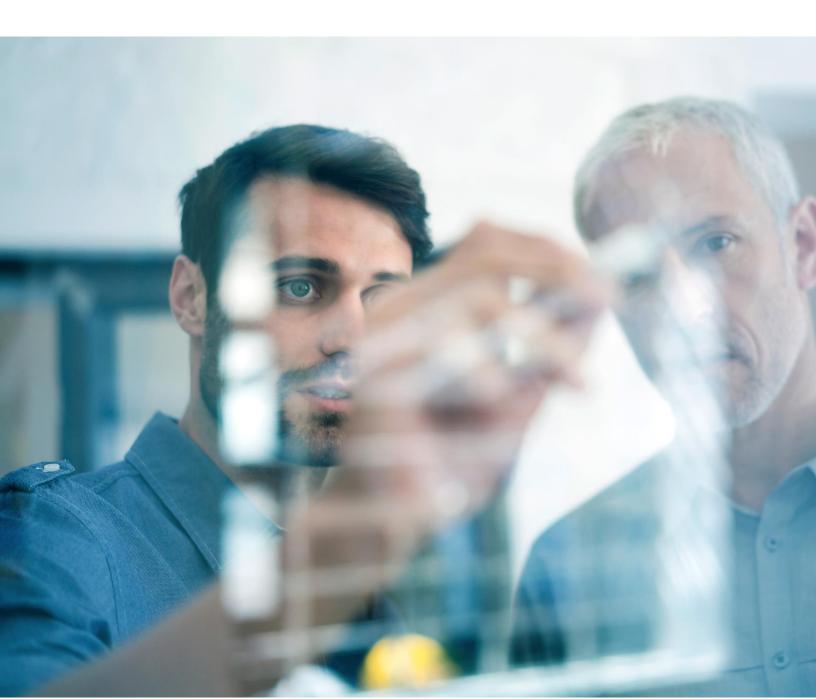
FACTSET SEARCH ANSWERS API – VERSION 1.0 DEVELOPER'S MANUAL AND REFERENCE

Last Updated August 2023



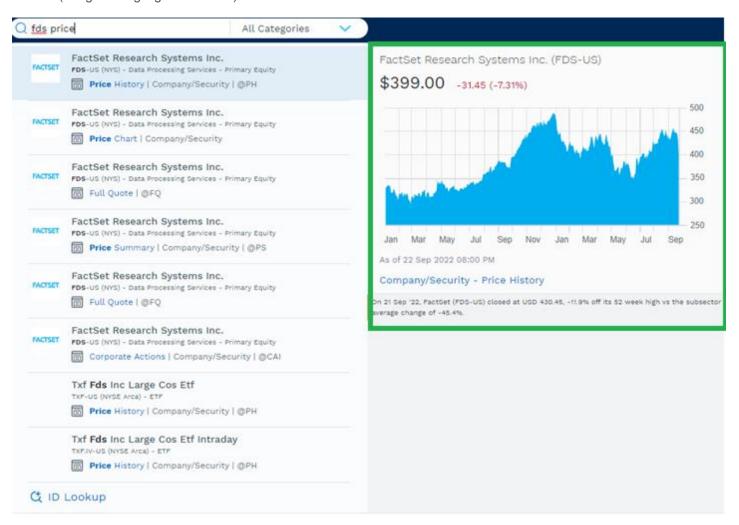
Contents

Introd	uction	3
Use C	Cases	4
	ionality not supported by the Answers API	
	ive Cards	
	Contexts	
	late Examples	
1.	ValueLabelTemplate	
2.	ValueLabelDateTemplate	
	·	
3.	ColoredValueLabelDateTemplate	
4.	ValueLabelDateTextBlockTemplate	
5.	ValueChangeDateLabelTemplate	
6.	ValueLabelDateDataPairListTemplate	
7.	PercentChangeLabelTemplate	
8.	LabelValueChangeLabelValueChangeTemplate	
9.	TextBlockFootingTemplate	
	LinkTextBlockTemplate	
	TableTemplate	
12.	TableTableTemplate	30
13.	RankedTableTemplate	32
No-An	nswer Templates	37
1.	No Answers Found	37
2.	Answer without Data	41
Δηςινιά	ars Available	42

Introduction

The FactSet Search Answers API exposes the data that is normally shown within FactSet Search answers (available on FactSet Workstation (Terminal) and FactSet Web).

An **answer** is a formatted response to a question with relevant data, as well as a link to the corresponding FactSet application that contains that data. For example, a query of "fds price" in FactSet Search might give the following Price answer (the green highlighted section):



The FactSet Search Answers API aims to provide the same data that's available in FactSet Search answers, but in an API format.

Note: The Answers API does not return FactSet Search **results**. The Answers API only exposes the answers portion of the search response.

Use Cases

The Answers API can be used anywhere users might ask a question (keyword or natural language), or where users might be looking for quick access to specific data on entities such as public companies, private companies, people, etc. For example, it can be integrated into a search system to provide quick answers in a search results page, hooked up to reply to queries in a chat-bot, or be leveraged to provide answers via voice assistants.

Functionality not supported by the Answers API

The Answers API does not support all content supported in the standard FactSet Search application.

- Currently only end-of-day pricing data is available through the Answers API (no real-time pricing data, etc.).
- Not all answers supported in FactSet Search are available on the Answers API. An exhaustive list of every answer is available in the final section of this document.
- Chart data is not currently available through the Answers API.

Adaptive Cards

The Answers API supports two different response formats – data-only, and Microsoft's Adaptive Cards (which contains markup information). Adaptive Cards can be more easily rendered by a consuming application, since Microsoft provides <u>SDKs</u> for doing this (and the styling can be customized).

As an example, when using the Adaptive Cards response format, a query about the price of FactSet would give back the following Adaptive Card JSON answers, in the *data* property:

```
"width": "auto",
                      "items": [
                           "type": "TextBlock",
                           "size": "extraLarge",
"text": "$424.79"
                        }
                      ],
                      "verticalContentAlignment": "bottom"
                    },
                      "type": "Column", "width": "auto",
                      "items": [
                        {
                           "type": "TextBlock",
                           "color": "good",
"text": "2.70 (0.64%)"
                        }
                      "verticalContentAlignment": "bottom"
              }
            ]
          },
            "type": "TextBlock", "size": "small",
            "isSubtle": true,
            "text": "As of 08 Aug 2023 05:05 AM (GMT)"
            "type": "TextBlock",
            "size": "medium",
"color": "accent",
            "isSubtle": true,
            "text": "[Company/Security - Price History](<a href="https://my.apps.factset.com/navigator/company-security/price-">https://my.apps.factset.com/navigator/company-security/price-</a>
history/FDS-US?action=set_identifier>)"
          }
       ]
     },
       "type": "AdaptiveCard",
        "version": "1.3",
        "body": [
            "type": "TextBlock",
            "size": "large",
            "weight": "lighter",
            "text": "Migdal Mutual Fds MTF Sal (4D) Bluestar Genomic Hlth Care ETF (MTF.F98-IL)"
            "type": "Container",
            "items": [
                 "type": "ColumnSet",
                 "columns": [
                      "type": "Column",
                      "width": "auto",
                      "items": [
```

```
"type": "TextBlock",
"size": "extraLarge",
"text": "NIS19.76"
                        "verticalContentAlignment": "bottom"
                        "type": "Column",
                        "width": "auto",
"items": [
                              "type": "TextBlock",
                              "text": "0.00 (0.00%)"
                        "verticalContentAlignment": "bottom"
                     }
                  ]
                }
            ],
"spacing": "none"
             "type": "TextBlock",
"size": "small",
             "isSubtle": true,
             "text": "As of 08 Aug 2023 05:05 AM (GMT)"
             "type": "TextBlock",
             "size": "medium",
"color": "accent",
             "isSubtle": true,
             "text": "[Company/Security - Price History](<a href="https://my.apps.factset.com/navigator/company-security/price-">https://my.apps.factset.com/navigator/company-security/price-</a>
history/MTF.F98-IL?action=set_identifier>)"
          }
     }
  ]
```

Please see Microsoft's documentation for more details regarding Adaptive Cards.

FDC3 Contexts

When using the data-only response format for answers, the answer will contain FDC3 contexts about the subject of the answer (when this information is available).

https://fdc3.finos.org/docs/next/context/overview

For example, a query about the price of FactSet would give back the following FDC3 object:

```
{
  "fdc3Context": {
    "type": "fdc3.instrument",
    "id": {
        "CUSIP": "303075105",
        "FDS_ID": "SQFMK3-R",
        "ISIN": "US3030751057",
        "SEDOL": "2329770",
        "ticker": "FDS",
        "FDS_TICKER_EXCHANGE": "FDS-USA",
        "FDS_TICKER_EXCHANGE": "FDS-US"
    },
    "name": "FactSet Research Systems Inc.",
        "exchangeMic": "XNYS",
        "exchangeMicFds": "NYS"
}
```

Template Examples

When an answer is returned from the API (in the data-only format), the data will be structured differently depending on the answer. We define specific templates that are used by different answers, and that specify the format of the data we expect.

Note: In FactSet Search, we define specific HTML and CSS styling for each template. To build a consumer of the API, you will need to manually define how each template is rendered.

In the examples below, we show each template currently supported by the API, as well as an example answer that uses each template. We show how we display the answer in FactSet Search for reference.

Note: Certain components are common to almost every template (headline, footer, application links, and the FDC3 context). These components are not mentioned in the template names.

1. ValueLabelTemplate

FactSet Search Example

FactSet Research Systems Inc. (FDS-US)

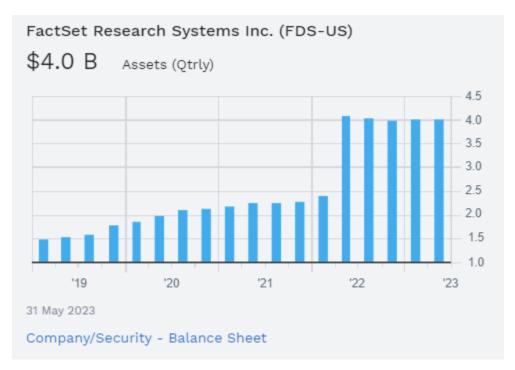
Data Processing Services Industry

Industry Analysis - Snapshot

```
"data": {
     "title": "Industry",
     "templateData": {
        "headline": "FactSet Research Systems Inc. (FDS-US)",
       "value": "Data Processing Services",
"label": "Industry",
"applicationLinks": [
            "name": "Industry Analysis - Snapshot",
"workstationLink": "fdsup://factset/LN%20Industry%20Snapshot?action=set_identifier&identifier=FDS-US",
             "webLink": "https://my.apps.factset.com/navigator/industry/snapshot/FDS-US?action=set_identifier"
       ],
"fdc3Context": {
    "- "fdc3.:
          "type": "fdc3.instrument",
            "CUSIP": "303075105",
"FDS_ID": "SQFMK3-R",
             "ISIN": "US3030751057",
            "SEDOL": "2329770",
            "ticker": "FDS",
            "FDS_TICKER_EXCHANGE": "FDS-USA",
"FDS_TICKER_REGION": "FDS-US"
          },
"name": "FactSet Research Systems Inc.",
          "exchangeMic": "XNYS",
          "exchangeMicFds": "NYS"
       }
     "template": "ValueLabelTemplate"
  }
}
```

2. ValueLabelDateTemplate

FactSet Search Example



```
"data": {
                   "title": "Total Assets",
                   "templateData": {
                            "headline": "FactSet Research Systems Inc. (FDS-US)",
                          "value": "$4.0 B",
"label": "Assets (Qtrly)",
"date": "31 May 2023",
                            "applicationLinks": [
                                             "name": "Company/Security - Balance Sheet",
                                             "workstationLink": "fdsup://factset/LN%20Balance%20Sheet?action=set_identifier&identifier=FDS-US",
                                             \verb|"webLink": "https://my.apps.factset.com/navigator/company-security/balance-sheet/FDS-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines-sheet/fds-lines
US?action=set_identifier'
                                   }
                           ],
"fdc3Context": {
    " "fdc3.:
                                     "type": "fdc3.instrument",
                                     "id": {
                                             "CUSIP": "303075105",
"FDS_ID": "SQFMK3-R",
                                              "ISIN": "US3030751057",
                                             "SEDOL": "2329770",
"ticker": "FDS",
                                             "FDS_TICKER_EXCHANGE": "FDS-USA",
                                              "FDS_TICKER_REGION": "FDS-US"
```

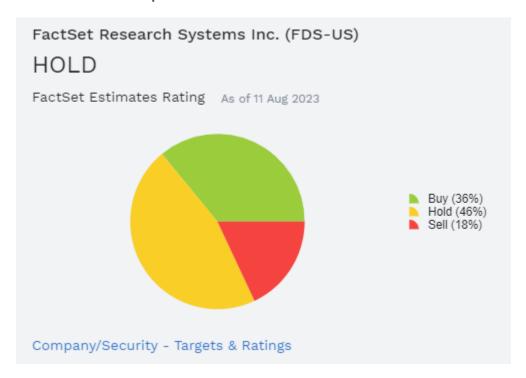
```
},
    "name": "FactSet Research Systems Inc.",
    "exchangeMic": "XNYS",
    "exchangeMicFds": "NYS"
    }
},
    "template": "ValueLabelDateTemplate"
}
```

3. ColoredValueLabelDateTemplate

This template is similar to ValueLabelDateTemplate but supports colors for the value field.

Note: The color options are just an enumerated list of values; it is up to the consumer of the API to associate actual colors with the color returned from the API. For example, for the Broker Rating answer seen below, we associate red with colorUnderweight and colorSell, yellow with colorHold, and green with colorOverweight and colorBuy.

FactSet Search Example



```
"id": {
    "CUSIP": "303075105",
    "FDS_ID": "SQFMK3-R",
    "ISIN": "US3030751057",
    "SEDOL": "2329770",
    "ticker": "FDS",
    "FDS_TICKER_EXCHANGE": "FDS-USA",
    "FPS_TICKER_REGION": "FDS-US"
    },
    "name": "FactSet Research Systems Inc.",
    "exchangeMic": "XNYS",
    "exchangeMicFds": "NYS"
    }
}
```

4. ValueLabelDateTextBlockTemplate

Note: The below example does not contain a date field, even though the template supports one. Answers are not required to utilize every field that a template supports.

FactSet Search Example

IPO of FactSet Research Systems Inc. (FDS-US)

\$17.00 IPO Price

FactSet Research Systems Inc.'s initial public offering took place on June 28, 1996. A total of 3.6 Million shares were offered at a price of \$17.00 per share.

Company/Security - Security Overview

5. ValueChangeDateLabelTemplate

Note: The ValueChange component also supports colors (colorPositive, colorNegative, and colorNeutral). It is up to the consumers of the API to implement the actual colors that are associated with these values.

FactSet Search Example



```
"data": {
  "title": "Price".
  "template": "ValueChangeDateLabelTemplate",
  "templateData": {
    "headline": "FactSet Research Systems Inc. (FDS-US)",
    "value": "$317.00",
    "valueChange": {
      "color": "colorNegative",
      "absoluteChange": "-4.56"
      "percentageChange": "-1.44%"
    },
"date": "As of 08 Jun 2020 06:42 PM (GMT)",
    "applicationLinks": [
        "name": "Company/Security - Price History",
        "workstationLink": "fdsup://factset/LN%20Price%20History?action=set_identifier&identifier=FDS-US",
        "webLink": "https://my.apps.factset.com/navigator/company-security/price-history/FDS-US?action=set_identifier"
    "fdc3Context": {
      "type": "fdc3.instrument",
```

```
"id": {
    "CUSIP": "303075105",
    "FDS_ID": "SQFMK3-R",
    "ISIN": "US3030751057",
    "SEDOL": "2329770",
    "ticker": "FDS",
    "FDS_TICKER_EXCHANGE": "FDS-USA",
    "FDS_TICKER_REGION": "FDS-US"
    },
    "name": "FactSet Research Systems Inc.",
    "exchangeMic": "XNYS",
    "exchangeMicFds": "NYS"
}
}
```

6. ValueLabelDateDataPairListTemplate

FactSet Search Example

```
FactSet Research Systems Inc. (FDS-US)

0.93% Dividend Yield

Indicated Dividend $3.92

Dividend Yield 0.93%

Last Dividend (Exdate) $0.98 (30 May 2023)

Next Exdate 30 Aug 2023

As of 11 Aug 2023
```

Company Dividend Excel Template

Company/Security - Corporate Actions

```
"data": {
    "title": "Dividend Yield",
     "template": "ValueLabelDateDataPairListTemplate",
    "templateData": {
       "headline": "FactSet Research Systems Inc. (FDS-US)",
       "value": "0.98%",
"label": "Dividend Yield",
       "list": [
           "label": "Indicated Dividend", "value": "$3.08"
           "label": "Dividend Yield",
           "value": "0.98%"
           "label": "Last Dividend (Exdate)",
           "value": "$0.77 (28 May 2020)"
           "label": "Projected Next Exdate",
           "value": "28 May 2020"
       ],
"footer": "As of 08 Jun 2020",
       "applicationLinks": [
           "name": "Company/Security - Corporate Actions",
"workstationLink": "fdsup://factset/LN%20Corporate%20Actions?action=set_identifier&identifier=FDS-US",
           "webLink": "https://my.apps.factset.com/navigator/company-security/corporate-actions/FDS-
US?action=set_identifier"
```

```
}

],

"fdc3Context": {

    "type": "fdc3.instrument",

    "id": {

        "CUSIP": "303075105",

        "FDS_ID": "SQFMK3-R",

        "ISIN": "US3030751057",

        "SEDOL": "2329770",

        "ticker": "FDS",

        "FDS_TICKER_EXCHANGE": "FDS-USA",

        "FDS_TICKER_EXCHANGE": "FDS-US"

    },

    "name": "FactSet Research Systems Inc.",

    "exchangeMic": "XNYS",

    "exchangeMicFds": "NYS"

}

}
```

7. PercentChangeLabelTemplate

Note: This template also supports colors for the PercentChange component. The color options are the same as for the ValueChange component.

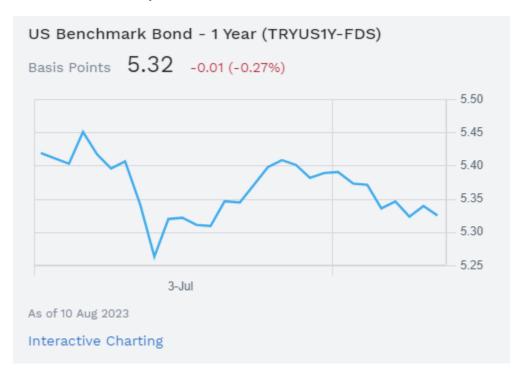
FactSet Search Example



```
"CUSIP": "303075105",
    "FDS_ID": "SQFMK3-R",
    "ISIN": "US3030751057",
    "SEDOL": "2329770",
    "ticker": "FDS",
    "FDS_TICKER_EXCHANGE": "FDS-USA",
    "FDS_TICKER_REGION": "FDS-US"
    },
    "name": "FactSet Research Systems Inc.",
    "exchangeMic": "XNYS",
    "exchangeMicFds": "NYS"
    }
},
    "template": "PercentChangeLabelTemplate"
}
```

8. LabelValueChangeLabelValueChangeTemplate

FactSet Search Example



```
"data": {
  "title": "Price Yields",
  "template": "LabelValueChangeLabelValueChangeTemplate",
  "templateData": {
    "headline": "US Benchmark Bond - 1 Year (TRYUS1Y-FDS)",
    "item1": {
      "label": "Basis Points",
      "value": "0.15",
"change": {
    "color": "colorPositive",
        "absoluteChange": "0.01",
        "percentageChange": "5.08%"
      }
    "footer": "As of 23 Jul 2020",
    "applicationLinks": [
        "name": "Interactive Charting",
        "workstationLink": "fdsup://factset/LN%20Interactive%20Charting?action=set_identifier&identifier=TRYUS1Y-FDS"
    ]
  }
}
```

9. TextBlockFootingTemplate

FactSet Search Example

FactSet Research Systems Inc. (FDS-US)

FactSet Research Systems Inc. (the "Company" or "FactSet") is a global provider of integrated financial information, analytical applications and services for the investment and corporate communities. Since inception, global financial professionals have utilized the Company's content and multi-asset class solutions across each stage of the investment process. FactSet's goal is to provide a seamless user experience spanning idea generation, research, portfolio construction, trade execution, performance measurement, risk management, reporting, and portfolio analysis, in which the Company serves the front, middle, and back offices to drive productivity and improved performance. FactSet's flexible, open data and technology solutions can be implemented both across the investment portfolio lifecycle or as standalone components serving different workflows in the organization. FactSet is focused on growing the business throughout each of its three segments, the Americas, EMEA (formerly known as Europe), and Asia Pacific. The Company primarily delivers insight and information through the workflow solutions of Research, Analytics and Trading, Content and Technology Solutions ("CTS") and Wealth. FactSet currently serves financial professionals, which include portfolio managers, investment research professionals, investment bankers, risk and performance analysts, wealth advisors and corporate clients. FactSet provides both insights on global market trends and intelligence on companies and industries, as well as capabilities to monitor portfolio risk and performance and to execute trades. The Company combines dedicated client service with open and flexible technology offerings, such as a configurable desktop and mobile platform, comprehensive data feeds, an open marketplace and digital portals and application programming

API Response Example

{

```
"data": {
    "title": "Company Description",
    "template": "TextBlockFootingTemplate",
    "templateData": {
      "headline": "FactSet Research Systems Inc. (FDS-US)",
      "body": "FactSet Research Systems Inc. (the \"Company\" or \"FactSet\") is a global provider of integrated
financial information, analytical applications and services for the investment and corporate communities. Since
inception, global financial professionals have utilized the Company's content and multi-asset class solutions across each
stage of the investment process. FactSet's goal is to provide a seamless user experience spanning idea generation,
research, portfolio construction, trade execution, performance measurement, risk management, reporting, and portfolio
analysis, in which the Company serves the front, middle, and back offices to drive productivity and improved performance.
FactSet's flexible, open data and technology solutions can be implemented both across the investment portfolio lifecycle
or as standalone components serving different workflows in the organization. FactSet is focused on growing the business
throughout each of its three segments, the Americas, EMEA (formerly known as Europe), and Asia Pacific. The Company
primarily delivers insight and information through the workflow solutions of Research, Analytics and Trading, Content and
Technology Solutions (\"CTS\") and Wealth. FactSet currently serves financial professionals, which include portfolio
managers, investment research professionals, investment bankers, risk and performance analysts, wealth advisors and
corporate clients. FactSet provides both insights on global market trends and intelligence on companies and industries,
as well as capabilities to monitor portfolio risk and performance and to execute trades. The Company combines dedicated
client service with open and flexible technology offerings, such as a configurable desktop and mobile platform,
comprehensive data feeds, an open marketplace and digital portals and application programming interfaces (\"APIs\"). The
Company's revenue is primarily derived from subscriptions to products and services such as workstations, analytics,
enterprise data, and research management. FactSet Research Systems was founded by Howard E. Wille and Charles J. Snyder
in September 1978 and is headquartered in Norwalk, CT.",
      "applicationLinks": [
          "name": "Company/Security - Snapshot",
          "workstationLink": "fdsup://factset/LN%20Company%20Snapshot?action=set identifier&identifier=FDS-US",
          "webLink": "https://my.apps.factset.com/navigator/company-security/snapshot/FDS-US?action=set_identifier"
        }
      "fdc3Context": {
        "type": "fdc3.instrument",
        "id": {
          "CUSIP": "303075105",
          "FDS_ID": "SQFMK3-R";
          "ISIN": "US3030751057",
          "SEDOL": "2329770",
          "ticker": "FDS",
          "FDS TICKER EXCHANGE": "FDS-USA",
          "FDS TICKER REGION": "FDS-US"
        "name": "FactSet Research Systems Inc.",
        "exchangeMic": "XNYS",
        "exchangeMicFds": "NYS"
 }
```

10. LinkTextBlockTemplate

FactSet Search Example

FactSet Research Systems Inc. (FDS-US)

http://www.factset.com

FactSet Research Systems Inc. (the "Company" or "FactSet") is a global provider of integrated financial information, analytical applications and services for the investment and corporate communities. Since inception, global financial professionals have utilized the Company's content and multi-asset class solutions across each stage of the investment process. FactSet's goal is to provide a seamless user experience spanning idea generation, research, portfolio construction, trade execution, performance measurement, risk management, reporting, and portfolio analysis, in which the Company serves the front, middle, and back offices to drive productivity and improved performance. FactSet's flexible, open data and technology solutions can be implemented both across the investment portfolio lifecycle or as standalone components serving different workflows in the organization. FactSet is focused on growing the business throughout each of its three segments, the Americas, EMEA (formerly known as Europe), and Asia Pacific. The Company primarily delivers insight and information through the workflow solutions of Research, Analytics and Trading, Content and Technology Solutions ("CTS") and Wealth. FactSet currently serves financial professionals, which include portfolio managers, investment research professionals, investment bankers, risk and performance analysts, wealth advisors and corporate clients. FactSet provides both insights on global market trends and intelligence on companies and industries, as well as capabilities to monitor portfolio risk and performance and to execute trades. The Company combines dedicated client service with open and flexible technology offerings, such as a configurable desktop and

API Response Example

-{

```
"data": {
    "title": "Website Info",
    "template": "LinkTextBlockTemplate",
    "templateData": {
      "headline": "FactSet Research Systems Inc. (FDS-US)",
      "link": "http://www.factset.com",
"text": "FactSet Research Systems Inc. (the \"Company\" or \"FactSet\") is a global provider of integrated
financial information, analytical applications and services for the investment and corporate communities. Since
inception, global financial professionals have utilized the Company's content and multi-asset class solutions across each
stage of the investment process. FactSet's goal is to provide a seamless user experience spanning idea generation,
research, portfolio construction, trade execution, performance measurement, risk management, reporting, and portfolio
analysis, in which the Company serves the front, middle, and back offices to drive productivity and improved performance.
FactSet's flexible, open data and technology solutions can be implemented both across the investment portfolio lifecycle
or as standalone components serving different workflows in the organization. FactSet is focused on growing the business
throughout each of its three segments, the Americas, EMEA (formerly known as Europe), and Asia Pacific. The Company
primarily delivers insight and information through the workflow solutions of Research, Analytics and Trading, Content and
Technology Solutions (\"CTS\") and Wealth. FactSet currently serves financial professionals, which include portfolio
managers, investment research professionals, investment bankers, risk and performance analysts, wealth advisors and
corporate clients. FactSet provides both insights on global market trends and intelligence on companies and industries,
as well as capabilities to monitor portfolio risk and performance and to execute trades. The Company combines dedicated
client service with open and flexible technology offerings, such as a configurable desktop and mobile platform,
comprehensive data feeds, an open marketplace and digital portals and application programming interfaces (\"APIs\"). The
Company's revenue is primarily derived from subscriptions to products and services such as workstations, analytics,
enterprise data, and research management. FactSet Research Systems was founded by Howard E. Wille and Charles J. Snyder
in September 1978 and is headquartered in Norwalk, CT.",
      "applicationLinks": [
          "name": "Company/Security - Snapshot",
          "workstationLink": "fdsup://factset/LN%20Company%20Snapshot?action=set_identifier&identifier=FDS-US",
          "webLink": "https://my.apps.factset.com/navigator/company-security/snapshot/FDS-US?action=set identifier"
      "fdc3Context": {
        "type": "fdc3.instrument",
        "id": {
          "CUSIP": "303075105",
          "FDS ID": "SOFMK3-R"
          "ISIN": "US3030751057",
          "SEDOL": "2329770",
          "ticker": "FDS",
          "FDS TICKER EXCHANGE": "FDS-USA",
          "FDS TICKER REGION": "FDS-US"
        "name": "FactSet Research Systems Inc.",
        "exchangeMic": "XNYS",
        "exchangeMicFds": "NYS"
   }
 }
```

11. Table Template

Note: We currently represent tables in JSON as an array of arrays, where each outer array represents a row, and each inner array represents the columns for that row. The headers and footers get their own one-dimensional arrays.

Table Example

```
{
  "table": {
    "tableHeaders": [
    "Header - Column 1",
    "Header - Column 2",
    "Header - Column 3"
],
  "tableRows": [
    "Row 1 - Column 1",
    "Row 1 - Column 3"
],
  "Row 1 - Column 3"
],
  [
    "Row 2 - Column 1",
    "Row 2 - Column 1",
    "Row 2 - Column 3"
],
  [
    "Row 3 - Column 3"
],
  [
    "Row 3 - Column 1",
    "Row 3 - Column 3"
],
  [
    "Row 3 - Column 1",
    "Row 3 - Column 3"
],
  "Footer - Column 3"
]
  "tableFooters": [
    "Footer - Column 1",
    "Footer - Column 3"
]
  "Footer - Column 3"
]
}
```

FactSet Search Example

			Deal	
Company	Industry	Country	Size (M of \$)	Listing Date
Osmosun (ALWTR- FR)	Environmental Services	FR	7.8 - 10.6	07 Oct '23
SK Securities No.10 Special Purpose Acquisition Co. (457940-KR)	Financial Conglomerates	KR	@NA	11 Aug '23
Nexteel Co., Ltd.	Wholesale Distributors	KR	80,500.0 - 87,500.0	18 Aug '23
Adlai Nortye Ltd.	Miscellaneous Commercial Services	CN	66.0 - 78.0	11 Aug '23
Inbound Platform Corp.	Wireless Telecommunications	JP	@NA	30 Aug '23

```
"08 Jun '20"
            "SK Biopharmaceuticals Co., Ltd.",
            "Pharmaceuticals: Major",
            "704,819.2 - 959,337.2",
"01 Jul '20"
            "Copa Corp., Inc. (7689-JP)", "Wholesale Distributors",
            "JP",
"1,997.5 - 2,210.0",
"24 Jun '20"
            "Vroom, Inc. (VRM-US)",
            "Specialty Stores",
            "US",
"337.5 - 375.0",
"11 Jun '20"
          ]
       ]
     }, "applicationLinks": [
          "name": "Event Calendar - Syndicate",
          "workstationLink": "fdsup://factset/LN%20Event%20Calendar?action=set_identifier&identifier=",
          "webLink": "https://my.apps.factset.com/navigator/company-security/event-calendar/?action=set_identifier"
     ]
}
```

12. Table Table Template

FactSet Search Example

Business Segments		Tot R (B,\$)	ev	% of Tot
Integrated Financial Inform Applications	mation & Analytical	1.8		100
Geographic Segments	Tot Rev (B,\$)		% of	Tot
United States	1.1		60	
United States Americas	0.1		60 4	

```
"data": {
  "title": "Company Segments",
"template": "TableTableTemplate",
  "templateData": {
    "headline": "FactSet Research Systems Inc. (FDS-US)",
     "table1": {
       "tableHeaders": [
         "Business Segments",
"Tot Rev (B,$)",
"% of Tot"
       ],
"tableRows": [
            "Integrated Financial Information & Analytical Applications",
            "1.4",
          ]
       ],
"tableFooters": []
    },
"table2": {
'-1 oHear
       "tableHeaders": [
          "Geographic Segments",
          "Tot Rev (M,$)",
          "% of Tot"
```

```
],
"tableRows": [
             "United States",
             "894.6",
             "62"
             "All Other European Countries",
             "241.1",
             "17"
             "United Kingdom",
             "166.9",
             "12"
          ],
             "Other (Total)", "132.7",
        ],
"tableFooters": []
     },
"applicationLinks": [
          "name": "Company/Security - Segment History",
"workstationLink": "fdsup://factset/LN%20Segment%20History?action=set_identifier&identifier=FDS-US",
           "webLink": "https://my.apps.factset.com/navigator/company-security/segments/FDS-US?action=set_identifier"
     ],
"fdc3Context": {
    "- "fdc3.:
        "type": "fdc3.instrument",
        "id": {
          "CUSIP": "303075105",
"FDS_ID": "SQFMK3-R",
          "ISIN": "US3030751057",
"SEDOL": "2329770",
"ticker": "FDS",
          "FDS_TICKER_EXCHANGE": "FDS-USA",
"FDS_TICKER_REGION": "FDS-US"
        },
"name": "FactSet Research Systems Inc.",
        "exchangeMic": "XNYS",
"exchangeMicFds": "NYS"
  }
}
```

13. Ranked Table Template

Note: The columns of this table do not uniformly pull from the row information: The "rank" property is used for the first column, the "entity" object is used for the second column, and the "additionalData" array is used for the remaining n - 2 columns.

FactSet Search Example

#	Company	% Chg
1	Rigetti Computing, Inc. (RGTI-USA)	59.65
2	Telesat Corp. (TSAT-USA)	44.67
3	IonQ, Inc. Warrant 2021-01.10.26 (IONQ.WT-USA)	31.89
4	Evolv Technologies Holdings, Inc. (EVLV-USA)	30.53
5	MicroCloud Hologram Inc. (HOLO-USA)	29.74
6	M-tron Industries Inc (MPTI-USA)	27.88
7	Bitdeer Technologies Group Class A (BTDR-USA)	27.45
8	Ouster, Inc. (OUST-USA)	23.33
9	Adial Pharmaceuticals, Inc. (ADIL-USA)	21.97
10	IonQ, Inc. (IONQ-USA)	21.79

```
{
 "data": {
    "title": "Daily Gainers Top 10",
    "template": "RankedTableTemplate",
    "templateData": {
      "table": {
        "headers": [
          "#",
          "Company"
          "% Price Change"
        "rows": [
          {
            "rank": 1,
            "entity": {
   "name": "fastjet plc",
              "identifier": "FJET-GB"
             'applicationLink": {
              "name": "Markets - Index Movers",
              "workstationLink":
"fdsup://factset/Market%20Navigator?_REPORT=Markets_Equity_Movers&action=set_identifier&identifier=FJET-GB",
              "webLink": "https://my.apps.factset.com/navigator/markets/index-
movers?action=set_identifier&identifier=FJET-GB"
             'additionalData": [
              "220.59"
            "rank": 2,
            "entity": {
   "name": "Valaris PLC Class A",
              "identifier": "VAL-US"
            "applicationLink": {
              "name": "Markets - Index Movers",
              "workstationLink":
"fdsup://factset/Market%20Navigator?_REPORT=Markets_Equity_Movers&action=set_identifier&identifier=VAL-US",
              "webLink": "https://my.apps.factset.com/navigator/markets/index-
movers?action=set_identifier&identifier=VAL-US"
             "additionalData": [
              "119.35"
            1
            "rank": 3,
            "entity": {
   "name": "Noble Corporation plc",
              "identifier": "NE-US"
             applicationLink": {
              "name": "Markets - Index Movers",
              "workstationLink":
"fdsup://factset/Market%20Navigator?_REPORT=Markets_Equity_Movers&action=set_identifier&identifier=NE-US",
              "webLink": "https://my.apps.factset.com/navigator/markets/index-movers?action=set_identifier&identifier=NE-
US"
            "additionalData": [
```

```
"117.50"
                               ]
                               "rank": 4,
                               "entity": {
   "name": "Hertz Global Holdings, Inc.",
                                    "identifier": "HTZ-US"
                                "applicationLink": {
   "name": "Markets - Index Movers",
                                    "workstationLink":
"fdsup://factset/Market%20Navigator?_REPORT=Markets_Equity_Movers&action=set_identifier&identifier=HTZ-US",
                                    "webLink": "https://my.apps.factset.com/navigator/markets/index-
movers?action=set_identifier&identifier=HTZ-US"
                               "additionalData": [
                                    "92.80"
                               ]
                               "rank": 5,
                               "entity": {
   "name": "Denbury Resources Inc.",
                                    "identifier": "DNR-US"
                                "applicationLink": {
                                     "name": "Markets - Index Movers",
                                    "workstationLink":
"fdsup://factset/Market%20Navigator? REPORT=Markets Equity Movers&action=set identifier&identifier=DNR-US",
                                    "webLink": "https://my.apps.factset.com/navigator/markets/index-
movers?action=set_identifier&identifier=DNR-US"
                              },
"additionalData": [
                                    "75.96"
                               ]
                               "rank": 6,
                               "entity": {
   "name": "Callon Petroleum Company",
                                    "identifier": "CPE-US"
                                "applicationLink": {
                                    "name": "Markets - Index Movers",
                                    "workstationLink":
"fdsup://factset/Market\%20Navigator?\_REPORT=Markets\_Equity\_Movers\&action=set\_identifier\&identifier=CPE-US", the set of the property of the p
                                    "webLink": "https://my.apps.factset.com/navigator/markets/index-
movers?action=set_identifier&identifier=CPE-US"
                              },
"additionalData": [
                                    "68.83"
                               ]
                         },
                               "rank": 7,
                              "entity": {
   "name": "Oasis Petroleum Inc.",
                                    "identifier": "OAS-US"
                                "applicationLink": {
                                     "name": "Markets - Index Movers",
```

```
"workstationLink":
"fdsup://factset/Market%20Navigator?_REPORT=Markets_Equity_Movers&action=set_identifier&identifier=OAS-US",
               "webLink": "https://my.apps.factset.com/navigator/markets/index-
movers?action=set_identifier&identifier=OAS-US"
            "additionalData": [
              "53.17"
            ]
            "rank": 8,
            "entity": {
   "name": "V1 Group Limited",
              "identifier": "82-HK"
             'applicationLink": {
              "name": "Markets - Index Movers",
              "workstationLink":
"fdsup://factset/Market%20Navigator? REPORT=Markets_Equity_Movers&action=set_identifier&identifier=82-HK",
              "webLink": "https://my.apps.factset.com/navigator/markets/index-movers?action=set_identifier&identifier=82-
НК"
             'additionalData": [
              "51.52"
            "rank": 9,
            "entity": {
    "name": "PT Kresna Graha Investama Tbk.",
              "identifier": "KREN-ID"
            "applicationLink": {
              "name": "Markets - Index Movers",
              "workstationLink":
"fdsup://factset/Market%20Navigator?_REPORT=Markets_Equity_Movers&action=set_identifier&identifier=KREN-ID",
              "webLink": "https://my.apps.factset.com/navigator/markets/index-
movers?action=set_identifier&identifier=KREN-ID"
             'additionalData": [
              "35.00"
            "rank": 10,
            "entity": {
   "name": "Transocean Ltd.",
              "identifier": "RIG-US"
             applicationLink": {
              "name": "Markets - Index Movers",
              "workstationLink":
"fdsup://factset/Market%20Navigator?_REPORT=Markets_Equity_Movers&action=set_identifier&identifier=RIG-US",
              "webLink": "https://my.apps.factset.com/navigator/markets/index-
movers?action=set_identifier&identifier=RIG-US"
            "additionalData": [
              "33.40"
        ]
      "footer": "Formula: PCHG | List as of 08 Jun '20"
```

I		
, ,		
}		
}		

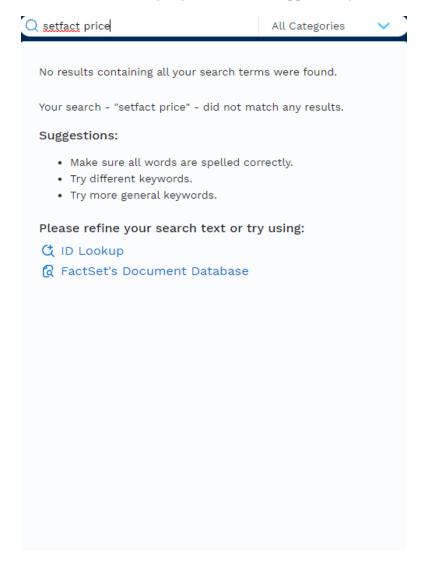
No-Answer Templates

The following templates are used when a search comes back with no valid answers.

1. No Answers Found

No valid answers were found. This template will sometimes also include did-you-mean (DYM) suggestions, when your query was close to returning a valid Answer but was not a valid query itself (by misspelling, etc.). The suggestions are possible queries that you may have meant to type.

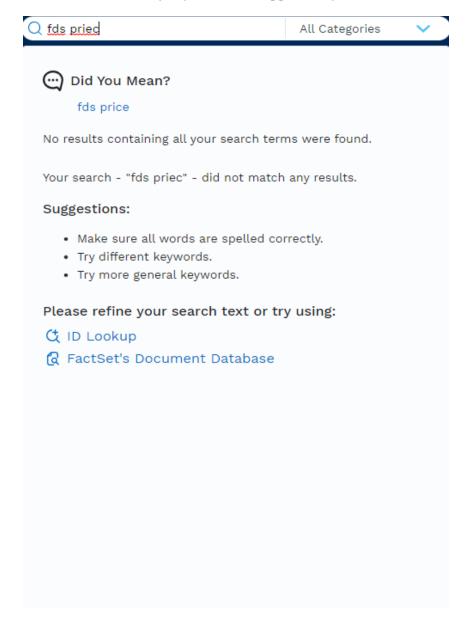
FactSet Search Example (Without DYM suggestions)



API Response Example (Without DYM suggestions)

```
{
  "data": {
    "message": "No answers were found for your query: \"setfact price\".",
    "querySuggestions": [],
    "template": "NoAnswerTemplate"
  }
}
```

FactSet Search Example (With DYM Suggestions)



API Response Example (With DYM Suggestions)

```
"data": {
    "message": "No answers were found for your query: \"fds priec\".",
    "querySuggestions": [
        "fd price",
        "mds price",
        "fds price",
        "fds price",
        "fdn price"
    ],
    "template": "NoAnswerTemplate"
    }
}
```

2. Answer without Data

This response is given when a query triggers a valid Answer, but when we do not have the proper data coverage to answer the question (for example, IPO prices for public equities that went public before we started collecting data).

```
"data": {
    "title": "IPO Price",
    "templateData": {
      "fdc3Context": {
        "type": "fdc3.instrument",
        "id": {
          "CUSIP": "459200101",
          "FDS_ID": "SJY281-R"
          "ISIN": "US4592001014",
          "SEDOL": "2005973",
"ticker": "IBM",
          "FDS_TICKER_EXCHANGE": "IBM-USA",
          "FDS_TICKER_REGION": "IBM-US"
        },
"name": "International Business Machines Corporation",
        "exchangeMic": "XNYS",
        "exchangeMicFds": "NYS"
      }
    },
"message": "An answer(s) was found for your query, but we do not have the appropriate coverage in this context (or
you do not have the appropriate permissions) for the answer: \"ibm ipo price\"",
    "template": "AnswerWithoutDataTemplate"
  }
```

Answers Available

Below is a list of every answer currently available through the API.

Most of these answers can be triggered by using some variation of the answer name, along with a valid input (or no input for some answers). For example, to trigger the Capital Expenditures answer, we would use the "capital expenditures" keywords, along with a public equity input (e.g., "factset"), making a query of "capital expenditures factset" (or "factset capital expenditures").

Note also that most answers have more than one set of acceptable keywords, though these are not listed below (e.g., Capital Expenditures can also be triggered using "capital expenses" or "CAPEX").

Note: Some answers require additional entitlements to view, and therefore may not be available depending on the account making the request to the API.

Accounts Payable - Ratios	Asset Turnover – Ratios	Balance Sheet	Balance Sheet - Ratios
Capital Expenditures	Current Ratio	Total Assets	Inventories
Free Cash Flow		Total Debt	Long-Term Debt
Operating Cash Flow		Shareholders Equity	Minority Interest
Return on Assets		Liabilities	Short-term Debt
Return on Equity		Accounts Payable	
ROIC		Accounts Receivable	
ROTC			
Cash & Short-term Investments			

Calendar	Cashflow	Cashflow - Ratios
Last Report Date	Last Dividend Paid	Cash Flow to Interest Expense
Next Report Date		Cash Flow to Total Debt
Next Dividend Exdate		Free Cash Flow to Net Income
IPO Date		
Largest Upcoming IPOs		
Nearest Upcoming IPOs		
Key Comparables		

Company Info	Coverage	Coverage - Ratios
Industry	Fixed-Charge Coverage	Interest Coverage (EBIT)
Sector		Interest Coverage (EBITDA)
CEO		LT Debt/EBITDA
CFO		LT Debt/FFO
COO		Net Debt/EBITDA
СТО		Net Debt/FFO
Number of Employees		Free Cash Flow to Debt
Headquarters		EBIT Interest Expense
Company Description		EBITDA Interest Expense
Website Info		
Auditor Details		
Current Fiscal Year End		
Last Fiscal Year End		

Funds	Estimate – Pricing	Income Statement	Income Statement - Ratios
Net Asset Value	Price Target	EBIT	Cost of Goods Sold
	Broker Rating	EBITDA	Gross Income
		EPS (Before Unusual items)	Income Taxes Payable
		EPS (Diluted)	Internet Expense
		Net Income	
		Sales	
		Income Taxes	
		Pretax Income	
		SG&A	
		Volume	

Industry Metrics – Airline	Industry Metrics – Casino	Industry Metrics – Hotel	Industry Metrics – Oil
Airline Metrics - Available Seat Miles	Casino Metrics - Floor Area	Hotel Metrics - Occupancy Rate	Oil and Mining Metrics - Number of Gas Stations
Airline Metrics - Cost Per Available Seat Mile	Casino Metrics - Revenue	Hotel Metrics - Number of Properties	Oil and Mining Metrics - Number of Refineries
Airline Metrics - Load Factor	Casino Metrics - Number of Slot Machines	Hotel Metrics - Revenue per Room	Oil and Mining Metrics - Oil Production per Day
Airline Metrics - Passenger Revenue Per Available Seat Mile	Casino Metrics - Number of Table Games	Hotel Metrics - Revenue per Available Room	Oil and Mining Metrics - Producing Wells
Airline Metrics - Revenue Passenger Miles		Hotel Metrics - # of Rooms	Oil and Mining Metrics - Production Cost per Barrel of Oil

Industry Metrics - Cruise	Industry Metrics – Retail	Industry Metrics - Coal	Leverage Ratios
Cruise Metrics – Number of Passengers	Retail Metrics - Online Sales	Oil and Mining Metrics - Coal Mining Production	Total Debt/EBITDA
Cruise Metrics – Capacity	Retail Metrics - Same Store Sales	Oil and Mining Metrics - Coal Mining Capex	Total Debt/Total Assets
Cruise Metrics – Net Available Passenger Cruise Days	Retail Metrics - Retail Floor Area SqFt	Oil and Mining Metrics - Coal Reserves	Total Debt/Total Capital
Cruise Metrics – Number of Ships	Retail Metrics - Total Stores / Net Change	Oil and Mining Metrics - Number of Mines	Total Debt/Total Equity

Cruise Metrics - Utilization

Liquidity Ratios	Operating Efficiency Ratios	Ownership	Per Share - Ratios
Quick Ratio	Revenue/Employee	Net Asset Value	Book Value per Share
Net Change in Cash	Net Income/Employee	Short Interest	
EBIT Margin	Inventory Turnover		
EBITDA Margin	Sales/Employee		
	Days of Sales Outstanding		
	Б : 11 Т		

Receivables Turnover

Pricing	Profitability	Ratios
Price Return	Gross Margin	Cash Ratio
Price	Net Margin	
Beta 1 Year	Operating Margin	
Beta 3 Year	Pretax Margin	

Pricing	Profitability	Ratios	
Beta 5 Year			
Beta 90-Day			
Net Debt			
IPO Price			

Screening	
Largest Companies by EPS (diluted before unusual)	Largest Companies by Return on Invested Capital
Largest Companies by Price/Cash Flow	Largest Companies by Revenue Growth
Largest Companies by EBIT	Largest Companies by Revenue
Largest Companies by EBITDA	Largest Companies by Short Interest
Largest Companies by FCF/Total Debt	Largest Companies by Stock Repurchases
Largest Companies by EV/EBITDA	Largest Companies by Free Cash Flow
Largest Companies by Price/Book	Largest Companies by FCF Yield
Largest Companies by Shareholders Equity	Largest Companies by Operating Cash Flow
Largest Companies by Price Target	Largest Companies by Pretax Margin
Largest Companies by Total Debt/Total Assets	Largest Companies by Volume
Largest Companies by Quick Ratio	Largest Companies by Fixed-Charge Coverage
Largest Companies by Price/Sales	Largest Companies by Interest Expense
Largest Companies by P/E Ratio	Largest Companies by Volume (30d Avg)
Largest Companies by Total Debt/Total Equity	Largest Companies by Liabilities
Largest Companies by Return on Total Capital	Largest Companies by Inventories
Largest Companies by Net Margin	Largest Companies by Gross Income
Largest Companies by Total Debt/Enterprise Value	Largest Companies by Inventory Turnover
Largest Companies by Operating Margin	Largest Companies by Days of Sales Outstanding
Largest Companies by Revenue/Employee	Largest Companies by Income Taxes Payable
Largest Companies by FCF/Share	Largest Companies by Minority Interest
Largest Companies by Short Interest	Largest Companies by Pretax Income
Largest Companies by Accounts Payable	Largest Companies by Short-Term Debt
Largest Companies by Accounts Receivable	Largest Companies by Net Income/Employee
Largest Companies by Beta	Largest Companies by Bankruptcies
Largest Companies by Book Value per Share	Largest Companies by Earnings Announcements
Largest Companies by Capex	Largest Companies by Working Capital Turnover
Largest Companies by COGS	Largest Companies by Payables Turnover

Screening	
Largest Companies by CTS Investments	Largest Companies by Days Payable Outstanding
Largest Companies by Current Assets	Largest Companies by Net Change in Cash
Largest Companies by Current Liabilities	Largest Companies by Income Taxes
Largest Companies by Current Ratio	Largest Companies by Gross Margin
Largest Companies by Debt	Largest Companies by Strong Balance Sheets
Largest Companies by Dividend Yield	Largest Companies by Total Debt/Total Capital
Largest Companies by Employee Count	Largest Companies by Income Growth
Largest Companies by Employee Growth	Largest Companies by Selling General and Administrative Expense
Largest Companies by Enterprise Value to Sales	Largest Companies by Interest Coverage
Largest Companies by EPS	Largest Companies by Unusual Volume
Largest Companies by Income	Largest Companies by EV/Sales
Largest Companies by Market Value	Largest Companies by Return on Equity
Largest Companies by Return on Assets	

Тор	Valuation	Valuation - Ratios
Top Gainers	Market Value	EV/EBITDA
Top Losers	Cash Ratio	EV/SALES
Top Movers	P/E Ratio	Price/Sales
Top Volume Leaders		Price/Book
Top Financial Advisors		Free Cash Flow Yield
		PEG Ratio
		EV/EBIT
		P/E Ratio
		Price/Cash Flow