**Data Availability Table**

Data Availability Table based on available data and requirements. I've grouped the variables into three categories: **Macroeconomic**, **Firm Data**, and **Technical Indicators**, indicating the availability, substitutes (if any), descriptions, and the data source.

**A. Macroeconomic**

| **Desired Variable** | **Available Variable** | **Description** | **Data Source** |
| --- | --- | --- | --- |
| tbl | TB3MS | Treasury bill rate (%), equivalent to TB3MS. | FRED |
| AAA | AAA | AAA corporate bond yields (%). | FRED |
| BAA | BAA | BAA corporate bond yields (%). | FRED |
| Rfree | TB3MS | **Rfree**: Risk-free rate approximated by 3-month T-bill. | FRED |
| infl | CPIAUCSL | Inflation rate based on Consumer Price Index data. | FRED |
| ltr | GS10 | Long-term bond yields equivalent to GS10 (10-Year Treasury). | FRED |

**B. Firm Data**

| **Desired Variable** | **Available Variable** | **Description** | **Data Source** |
| --- | --- | --- | --- |
| CRSP\_SPvw | ^GSPC.Close | Value-weighted index approximated by S&P 500 closing prices. | yfinance |
| CRSP\_SPvwx | ^GSPC.Close | Value-weighted index ex-dividends, no direct substitute available. | yfinance |
| mvel1 | MMM.Close | Market value using Market Cap, approximated from stock closing prices. | yfinance |
| bm | N/A | Book-to-Market ratio  Book Value/Market Value, unavailable. Compute using firm data. | Computed |

**C. Technical Indicators**

| **Desired Variable** | **Available Variable** | **Description** | **Data Source** |
| --- | --- | --- | --- |
| turn | MMM.Volume | Turnover ratio Volume}/Market Cap, partially derived from volume data. | yfinance |
| beta | MMM.beta | Systematic risk measure calculated based on covariance. | Computed |
| betasq | MMM.betasq | Squared beta, already provided. | Computed |
| mom1m | MMM.mom1m | 1-month momentum, directly available. | Computed |
| mom6m | MMM.mom6m | 6-month momentum, directly available. | Computed |
| mom12m | MMM.mom12m | 12-month momentum, directly available. | Computed |
| dolvol | MMM.dolvol | Dollar volume, directly available. | Computed |
| pricedelay | MMM.pricedelay | Price delay indicator, directly available. | Computed |

**Extra Variables**

| **Variable** | **Description** | **Data Source** |
| --- | --- | --- |
| VIXCLS | Volatility index (VIX), a measure of market risk and sentiment. | FRED |
| PAYEMS | Non-farm payroll employment, a macroeconomic indicator. | FRED |
| UNRATE | Unemployment rate (%). | FRED |
| GDPC1 | Real GDP (constant prices). | FRED |
| NCBEILQ027S | NCBEILQ027S: Nonfinancial Corporate Business; Corporate Equities; Liability, Level (in millions of dollars). | FRED |

**Notes:**

* **Substitutes**: For some unavailable data like CRSP\_SPvwx suitable substitutes are provided.