# Final Project: Quality minus Junk

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Strategy Abstract

We replicated the Quality minus Junk trading strategy proposed in the paper Quality minus Junk by Clifford S Asness, Andrea Frazzini, and Lasse Heje Pedersen.

we define quality as characteristics that investors should be willing to pay a higher price for, everything else equal. To apply our general definition of quality, we must identify stock characteristics that should command a higher price.

We can rewrite Gordon’s growth model as following:

We scale price by book values to make them more stationary over time and in cross section.

According to the equation above, quality can be defined based on three key variables:

* **Profitability.** Profitability is the profits per unit of book value. All else equal, more profitable companies should command a higher stock price.
* Growth. Investors should also pay a higher price for stocks with growing profits.
* Safety. Investors should also pay, all-else-equal, a higher price for a stock with a lower required return, that is, a safer stock. We consider both return-based measure of safety (e.g., market beta) and fundamental-based measures of safety (low volatility of profitability, low leverage, and low credit risk).

Data Source and Description

Quality Score Calculation

Quality score consists of three parts: *profitability, growth, and safety*. Each year, we convert each variable into ranks and standardize to obtain a z-score. More formally, let be the variable of interest and r be the vector of ranks, . Then the z-score of the ranks of is given by , where and are the cross-sectional mean and standard deviation of .

Our *profitability, growth, and safety* scores are the average of the individual z-scores, and the variable description is in Table I:

Finally, we combine the three measures into a single quality score:

|  |  |
| --- | --- |
| **Table 1** Quality score variables description | |
| Variables | Description |
| GPOA | (REVT − COGS)/AT |
| ROE | IB/BE |
| ROA | IB/AT |
| CFOA | (NB + DP − ΔWC − CAPX)/AT. |
| GMAR | (REVT − COGS)/SALE |
| ACC | −(ΔWC − DP)/AT |
| WC | ACT − LCT − CHE + DLC + TXP |
| BAB |  |
| LEV | −(DLTT + DLC + MIBT + PSTK)/AT |

|  |  |
| --- | --- |
|  | |
| ADJASSET | AT+0.1 \* (ME – BE) |
| TLTA | (DLC + DLTT)/ADJASSET |
| WCTA | (ACT – LCT)/ADJASSET |
| CLCA | LCT/ACT |
| OENEG | Dummy 1(LT > AT) |
| NITA | IB/AT |
| FUTL | PT.LT |
| INTWO | Dummy |
| CHIN |  |
| Altman’s Z-Score |  |