

Empirical Variable Dictionary

A.1 Purpose

This appendix provides a technical reference for the variables used in the empirical implementation of the Accounting Bias Framework.

The theoretical definition of Accounting Bias remains

$$AB_{it} = A_{it} - E_{it},$$

where A_{it} denotes accounting representation and E_{it} denotes the corresponding economic state.

Because E_{it} is generally unobservable, the empirical variables used in this book should not be interpreted as direct estimates of AB_{it} .

Instead, they identify observable exposure to accounting mechanisms associated with Recognition, Measurement, Timing, and Estimation.

The core empirical representation is therefore

$$\mathbf{x}_{it}^{AB} = \begin{bmatrix} RDINT & GWINT & PPEINT \\ ACCDEPINT & ACCRUALINT & DTINT \end{bmatrix}_{it}.$$

The variables describe an Accounting Bias *profile*, rather than a scalar ranking.

A.2 Scaling Conventions

Accounting quantities expressed in absolute currency units are generally not comparable across firms of different sizes.

The principal scaling variable is total assets:

$$TA_{it}.$$

For flow variables, average assets are used where appropriate:

$$\overline{TA}_{it} = \frac{TA_{i,t-1} + TA_{it}}{2}.$$

The use of average assets is particularly appropriate when the numerator represents activity accumulated throughout the fiscal year.

A.3 Recognition Variables

A.3.1 Research and Development Intensity

Research and development intensity is defined as

$$RDINT_{it} = \frac{RD_{it}}{\overline{TA}_{it}}.$$

Here,

$$RD_{it}$$

denotes reported research and development expenditure.

The variable measures the importance of internally generated research activity relative to the firm's accounting asset base.

Its theoretical interpretation is exposure to recognition asymmetry.

Internally generated knowledge may create economically valuable resources without producing corresponding balance-sheet recognition.

Thus,

$$RDINT \uparrow$$

indicates greater exposure to the accounting treatment of internally generated knowledge investment.

It does not imply that Accounting Bias itself can be measured directly.

A.3.2 Goodwill Intensity

Goodwill intensity is defined as

$$GWINT_{it} = \frac{Goodwill_{it}}{TA_{it}}.$$

Goodwill arises primarily through business combinations.

The variable therefore captures the importance of acquisition-generated intangible recognition within the reported balance sheet.

Conceptually,

$$GWINT \uparrow$$

indicates greater exposure to acquisition accounting, purchase-price allocation, residual goodwill recognition, and subsequent impairment testing.

The variable lies partly at the intersection of Recognition, Measurement, and Estimation.

A.4 Measurement Variables

A.4.1 Property, Plant and Equipment Intensity

Property, plant and equipment intensity is defined as

$$PPEINT_{it} = \frac{NetPPE_{it}}{TA_{it}}.$$

The variable measures the relative importance of long-lived tangible productive assets.

A high value indicates greater exposure to accounting mechanisms involving

- historical-cost measurement;
- depreciation;
- useful-life estimates;
- residual-value estimates;
- impairment;
- asset replacement cycles.

The variable does not determine the sign of the underlying divergence between accounting carrying amount and economic value.

A.4.2 Accumulated Depreciation Intensity

Accumulated depreciation intensity is defined as

$$ACCDEPINT_{it} = \frac{AccumulatedDepreciation_{it}}{GrossPPE_{it}}.$$

The variable captures the extent to which the depreciable historical-cost asset base has already been allocated through depreciation.

It provides information about the accounting state of the tangible asset base and complements *PPEINT*.

A higher value generally corresponds to a larger accumulated depreciation balance relative to gross PPE.

A.4.3 PPE Age

Where the required accounting components are available, an additional measurement diagnostic approximates the effective accounting age of the tangible asset base.

The variable is denoted

$$PPEAGE_{it}.$$

This extended variable is used for structural diagnostics rather than as a core proxy in the principal hypothesis tests because coverage is materially lower.

A.5 Timing Variables

A.5.1 Accrual Intensity

Accrual intensity is defined as

$$ACCRUALINT_{it} = \frac{|NI_{it} - CFO_{it}|}{TA_{it}},$$

where

$$NI_{it}$$

is net income and

$$CFO_{it}$$

is operating cash flow.

The absolute value is used because the empirical objective is to measure the magnitude of the divergence between accrual-based earnings and operating cash realization.

A large value does not imply accounting error.

Accrual accounting deliberately allocates revenues and expenses across

periods.

The variable instead measures the importance of this temporal transformation.

A.5.2 Deferred-Tax Intensity

Deferred-tax intensity is defined as

$$DTINT_{it} = \frac{DeferredTaxExposure_{it}}{TA_{it}}.$$

The exact deferred-tax quantity is constructed from the available standardized tax-related accounting facts used by the extraction pipeline.

Deferred-tax balances arise because accounting and taxation can recognize economic events in different periods or at different measurement bases.

The variable therefore represents tax-accounting timing exposure.

The empirical analysis shows that this form of Timing is distinct from operating accrual timing.

A.6 Extended Intangible Variable

Identifiable intangible-asset intensity is denoted

$$INTANINT_{it}.$$

It measures identifiable intangible assets relative to the relevant asset base.

The variable provides supplementary information concerning recognized intangibles but is not included among the six core proxies because its coverage is materially lower.

A.7 Estimation Variables

The empirical construction process also investigates variables associated with

- allowances;
- bad-debt provisions;
- provisions more generally.

These variables are theoretically important because they depend directly on estimates of uncertain future outcomes.

However, standardized XBRL coverage across the predetermined sample is substantially lower.

The Estimation dimension is therefore retained conceptually but treated as exploratory in the present empirical implementation.

This distinction follows the principle

theoretical importance $\neq$ empirical observability.
--

A.8 Control Variables

A.8.1 Firm Size

Firm size is represented using a transformation of total assets:

$$SIZE_{it} = \ln(TA_{it}).$$

The control captures systematic differences associated with organizational scale.

A.8.2 Equity Ratio

The equity ratio is defined as

$$EQUITY_RATIO_{it} = \frac{Equity_{it}}{TA_{it}}.$$

It controls for broad differences in capitalization and financial structure.

A.8.3 Asset Growth

Asset growth is defined as

$$ASSET_GROWTH_{it} = \frac{TA_{it} - TA_{i,t-1}}{TA_{i,t-1}}.$$

Because the 2021 value requires a 2020 asset observation, the raw data collection includes 2020 as a support year even though the principal analysis period begins in 2021.

A.9 Profitability Variable

The principal accounting outcome is return on assets:

$$ROA_{it} = \frac{NI_{it}}{TA_{it}}.$$

The ROA regressions are interpreted as conditional association tests.

They do not identify causal effects of Accounting Bias exposure on profitability.

A.10 Summary

The six core empirical proxies can be summarized as

<i>RDINT</i>	→	<i>Recognition,</i>
<i>GWINT</i>	→	<i>Recognition,</i>
<i>PPEINT</i>	→	<i>Measurement,</i>
<i>ACCDEPINT</i>	→	<i>Measurement,</i>
<i>ACCRUALINT</i>	→	<i>Operating Timing,</i>
<i>DTINT</i>	→	<i>Tax Timing.</i>

The empirical analysis deliberately preserves these variables separately.

No equal-weight composite Accounting Bias Index is used as the principal measure because the observed variables differ in economic interpretation, persistence, within-firm behavior, and statistical relationships.

