Common Elements of Financial Statements

Building on the FASB and IASB conceptual frameworks to facilitate XBRL-based financial reporting

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> "I skate to where the puck is going to be, not where it has been." *Wayne Gretzky*, legendary Canadian hockey star

Executive summary:

- FASB issued SFAC 6[1] which defines the elements of financial statements for US GAAP. Ten core high-level financial statement elements are defined.
- The IASB likewise defines elements of financial statements in the IFRS conceptual framework[2]. They define only seven core high-level financial statement elements.
- Both sets of elements of financial statements are more the same than different.
- This is not an attempt to explain nuances between the definition of a concept such as "assets" and explain why the FASB and IASB definitions are different. This document looks at this from a different perspective. Nuances in the different definitions are not relevant to what I am trying to achieve in this document.
- Both the FASB and IASB models fit into the over arching models of double entry bookkeeping and the accounting equation. Both descriptions provide information that the other leaves out.
- This document is intended to provide a complete, explicit, high quality conceptual description of a financial report at a high level. It includes the terms, associations between the terms, assertions (a.k.a. rules) related to the mathematical interrelationships between the terms, and other such helpful information.

Documentation for this representation can be obtained here[3].

[1] FASB, *Statement of Financial Reporting Concepts No. 6 (SFAC 6), Elements of Financial Statements*, https://www.fasb.org/jsp/FASB/Document_C/DocumentPage?cid=1218220132802

[2] IASB, *Conceptual Framework for Financial Reporting*, https://www.ifrs.org/issued-standards/list-of-standards/conceptual-framework/

[3] *Common Elements of Financial Statements*, http://xbrlsite.azurewebsites.net/2020/core/master-common/index.html

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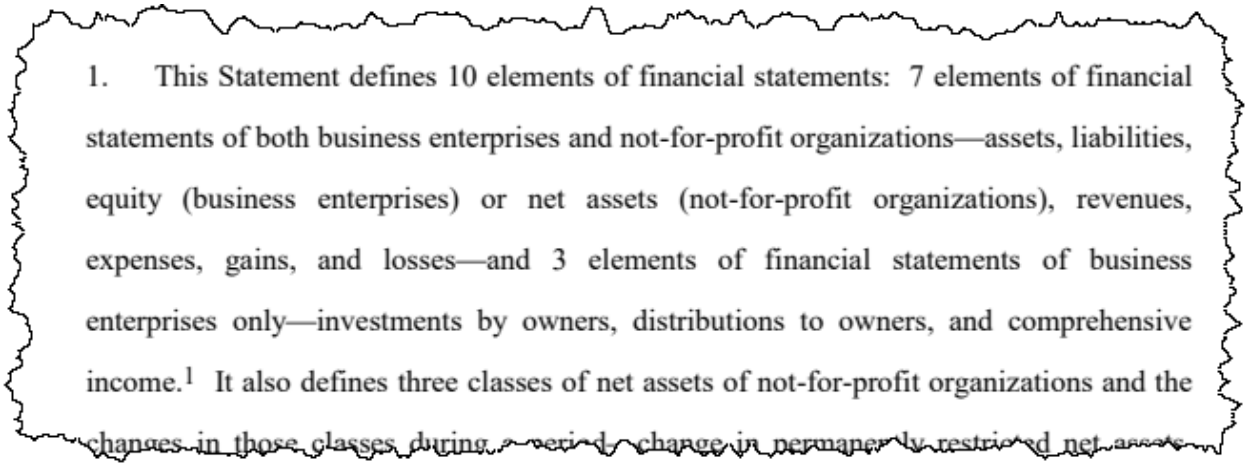
This document builds on two prior documents. The first document is an explanation of a representation of the **accounting equation** using the XBRL technical syntax and prolog[4]. The second document is an explanation of a representation of the FASB's **SFAC 6** *Elements of Financial Statements* using the XBRL technical syntax and Prolog[5].

FASB SFAC 6 *Elements of Financial Statements*[6] explicitly defines 10 elements of a financial statement. Those elements are: assets, liabilities, equity, investments by owners, distributions to owners, comprehensive income, revenues, expenses, gains, losses.



1. This Statement defines 10 elements of financial statements: 7 elements of financial statements of both business enterprises and not-for-profit organizations—assets, liabilities, equity (business enterprises) or net assets (not-for-profit organizations), revenues, expenses, gains, and losses—and 3 elements of financial statements of business enterprises only—investments by owners, distributions to owners, and comprehensive income.[1] It also defines three classes of net assets of not-for-profit organizations and the changes in those classes during a period, change in permanently restricted net assets

IASB describes the core elements in the ***Conceptual Framework for Financial Reporting***[7] which is made available via the IFRS Foundation. Those elements are: assets, liabilities, equity, income, expenses, contributions from holders of equity claims, distributions to holders of equity claims, exchanges of assets or liabilities that do not result in an increase or decrease in equity (see Table 4.1 – The elements of financial statements, Chapter 4, paragraph 4.2 on page A36 of the conceptual framework)

[4] Charles Hoffman, CPA, *Accounting equation represented using XBRL and Prolog*, http://xbrlsite.azurewebsites.net/2020/core/master-ae/

[5] Charles Hoffman, CPA, SFAC 6 representation using XBRL and Prolog, http://xbrlsite.azurewebsites.net/2020/core/master-sfac6/

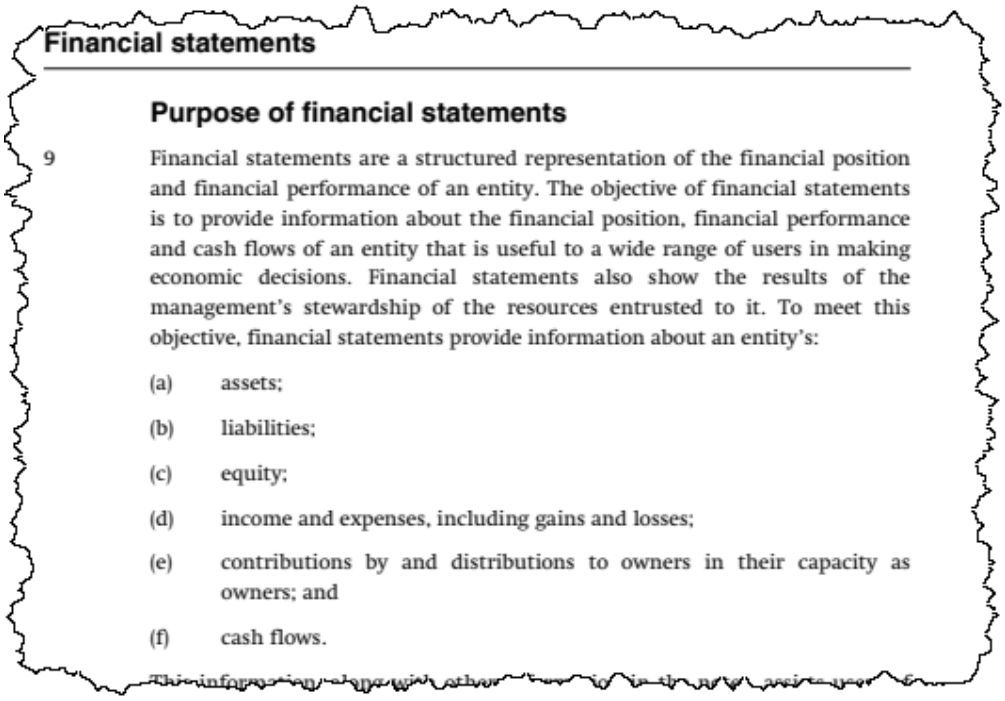
[6] FASB, *Statement of Financial Reporting Concepts No. 6 (SFAC 6)*, *Elements of Financial Statements*, https://www.fasb.org/jsp/FASB/Document_C/DocumentPage?cid=1218220132802

[7] IASB, *Conceptual Framework for Financial Reporting*, https://www.ifrs.org/issued-standards/list-of-standards/conceptual-framework/

Table 4.1 – The elements of financial statements

Item discussed in Chapter 1	Element	Definition or description
Economic resource	Asset	A present economic resource controlled by the entity as a result of past events. An economic resource is a right that has the potential to produce economic benefits.
Claim	Liability	A present obligation of the entity to transfer an economic resource as a result of past events.
	Equity	The residual interest in the assets of the entity after deducting all its liabilities.
Changes in economic resources and claims, reflecting financial performance	Income	Increases in assets, or decreases in liabilities, that result in increases in equity, other than those relating to contributions from holders of equity claims.
	Expenses	Decreases in assets, or increases in liabilities, that result in decreases in equity, other than those relating to distributions to holders of equity claims.
Other changes in economic resources and claims	–	Contributions from holders of equity claims, and distributions to them.
	–	Exchanges of assets or liabilities that do not result in increases or decreases in equity.

In IAS 1 *Presentation of Financial Statements*[8], a slightly different set of terms is defined:



Financial statements

Purpose of financial statements

9 Financial statements are a structured representation of the financial position and financial performance of an entity. The objective of financial statements is to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions. Financial statements also show the results of the management's stewardship of the resources entrusted to it. To meet this objective, financial statements provide information about an entity's:

(a) assets;

(b) liabilities;

(c) equity;

(d) income and expenses, including gains and losses;

(e) contributions by and distributions to owners in their capacity as owners; and

(f) cash flows.

This information, along with other [illegible]

[8] IFRS Foundation, IAS 1, *Presentation of Financial Statements*, page A941, https://www.ifrs.org/issued-standards/list-of-standards/ias-1-presentation-of-financial-statements/

Also in IAS 1[9], the financial statements that need to be provided are explained.

- a statement of financial position as at the end of the period;
- a statement of profit and loss and other comprehensive income for the period. Other comprehensive income is those items of income and expense that are not recognised in profit or loss in accordance with IFRS Standards. IAS 1 allows an entity to present a single combined statement of profit and loss and other comprehensive income or two separate statements;
- a statement of changes in equity for the period;
- a statement of cash flows for the period;
- notes, comprising a summary of significant accounting policies and other explanatory information; and
- a statement of financial position as at the beginning of the preceding comparative period when an entity applies an accounting policy retrospectively or makes a retrospective restatement of items in its financial statements, or when it reclassifies items in its financial statements.

Finally, accountants and financial analysts have the notion of the "four statement model[10]" which includes a balance sheet, income statement, statement of changes in equity, and cash flow statement. Different people may use different terms to describe the four core financial statements and some people refer to a "three statement model[11]".

Both the IASB and the FASB discuss the notions of "articulation" and "intermediate components" which I explain in detail in the SFAC 6 Elements of Financial Statements representation[12].

Intermediate accounting text books discuss the conceptual frameworks of both IFRS and US GAAP; this is fundamental information that is necessary to understand financial reporting.

What this document does is articulate one core "common elements of financial statements" representation that is used to both understand how accounting works and how financial report information is represented in the XBRL technical syntax format. What I have tried to do is create the smallest representation that gives me the coverage of topics that I want to explore in this document. After reading this document, you are encouraged to explore the proof representation[13]. That proof representation in XBRL will take you to the next level of learning.

[9] IFRS Foundation, IAS 1, *Presentation of Financial Statements*, see the About section on this page, https://www.ifrs.org/issued-standards/list-of-standards/ias-1-presentation-of-financial-statements/

[10] PrinciplesOfAccounting.com, *The Four Core Financial Statements* , https://www.principlesofaccounting.com/chapter-1/financial-statements/

[11] CFI, *3 Statement Model*, https://corporatefinanceinstitute.com/resources/knowledge/modeling/3-statement-model/

[12] SFAC 6 representation, http://xbrlsite.azurewebsites.net/2020/core/master-sfac6/

[13] Charles Hoffman, CPA, Proof, http://xbrlsite.azurewebsites.net/2020/core/master-proof/

Double-entry Accounting.

Single-entry accounting is how 'everyone' would do accounting. In fact, that is how accounting was done for about 4,000 years before double-entry accounting was invented. Double-entry accounting was the invention of medieval merchants and was first documented by the Italian mathematician and Franciscan Friar Luca Pacioli[14] in 1494. The section related to double-entry accounting was translated into English in 1914[15].

Double-entry accounting adds an additional important property to the accounting system, that of a clear strategy to identify errors and to remove the errors from the system. Even better, double-entry accounting has a side effect of clearly firewalling errors as either accident or fraud. This then leads to an audit strategy. Double-entry accounting is how professional accountants do accounting.

Which came first, double-entry accounting or the enterprise? It is hard to overstate the impact of double-entry accounting on the evolution of the complex global enterprise[16].

Foundational Mathematical Equation for Double-Entry Accounting

The foundational basis of double-entry accounting is straightforward. Quoting David Ellerman from his paper *The Math of Double-Entry Bookkeeping: Part I (scalars)*[17]:

> "Given an equation w + … + x = y + … + z, it is not possible to change just one term in the equation and have it still hold. Two or more terms must be changed."

And so, the left-hand side of the equation "w + … + x" (the DEBIT side) must always equal the right-hand side of the equation "y + … + z" (the CREDIT side) in double-entry accounting. The reason that double-entry accounting is used, as contrast to single-entry accounting, is double-entry accounting's capability to detect errors and to distinguish an error from fraud.

Of course, there are a lot of details associated with setting up and operating an accounting system appropriately, but the fundamental feature is that DEBITS must equal CREDITS and if they don't, then something is up which needs to be investigated and corrected.

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[14] Wikipedia, *Luca Pacioli*, https://en.wikipedia.org/wiki/Luca_Pacioli

[15] J. B. Geijsbeek, *Ancient Double-Entry Bookkeeping*, https://archive.org/details/ancientdoubleent00geij/page/n3

[16] Ian Grigg, *Triple Entry Accounting*, https://iang.org/papers/triple_entry.html

[17] David Ellerman, *The Math of Double-Entry Bookkeeping: Part I (scalars)*, http://www.ellerman.org/the-math-ofdouble-entry-bookkeeping-part-i-scalars/

If you desire to learn more about double-entry accounting, see Colin Dodd's rap song, Debit Credit Theory (Accounting Rap Song)[18].

The Accounting Equation: Framework for Financial Accounting

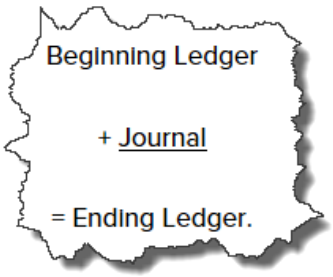
While the model "Debits = Credits" or the notion of basically using two single entry ledgers and synchronizing them to detect errors or fraud is useful; additional power is provided to double-entry accounting via the accounting equation[19] which is:

"Assets = Liabilities + Equity"

The accounting equation within the double-entry accounting is the fundamental basis for financial accounting. By definition, every financial reporting scheme[20] has this high-level model at its core.

Ledgers and Journals, Stocks and Flows

Another important piece of double-entry accounting is explained well in David Ellerman's article, *The Math of Double-Entry Bookkeeping: Part II (vectors)*, is ledgers and journals[21]. Many accountants use the terms "ledger" and "journal" incorrectly. This works the same for general and special ledgers and journals. This is the relationship between a ledger and a journal:



Ledgers summarized balances. For example, the general ledger summarizes account balances.

[18] YouTube, *Colin Dodd's rap song, Debit Credit Theory (Accounting Rap Song)*, https://www.youtube.com/watch?v=j71Kmxv7smk

[19] Wikipedia, Accounting Equation, https://en.wikipedia.org/wiki/Accounting_equation

[20] Charles Hoffman, CPA, *Comparison of Financial Reporting Schemes High Level Concepts*, http://xbrlsite.azurewebsites.net/2018/Library/ReportingSchemes-2018-12-30.pdf

[21] David Ellerman, *The Math of Double-Entry Bookkeeping: Part II (vectors)*, http://www.ellerman.org/the-math-of-double-entry-bookkeeping-part-ii-vectors/

Journals record the transactions which make up the changes between ledger balances. Other terms used for the relationship shown above are "roll forward" or "movements" or "stocks and flows" or "account analysis". All three of these terms basically explain the following equation:

"Beginning balance + Additions - Subtractions = Ending balance"

Balance sheet accounts are stocks. Roll forwards of the beginning and ending balances of balance sheet accounts are flows. The income statement is a flow of net income (loss). The cash flow statement is a roll forward of the net change in cash and cash equivalents. The statement of changes in equity is a roll forward of equity accounts.

Many transactions, events, circumstances, and other phenomenon are recorded as transactions in a journal, make their way to a ledger, and then end up in the primary financial statements or within disclosures which detail the line items of the primary financial statements. Much of this information is part of the two trees which make up the roll ups of "Assets" and "Liabilities and Equity". However, other there are other trees that can make up the complete "forest" of a financial report. For more information about the "forest" and the "trees" of a financial report, see the document *Leveraging the Theoretical and Mathematical Underpinnings of a Financial Report*[22]. That document also has some good information related to triple-entry accounting which I am not going to get into here.

As pointed out in the document *General Ledger Trial Balance to External Financial Report*[23], each balance sheet line item has a roll forward. While perhaps not reported externally, these roll forwards can be quite helpful internally to verify that a financial report has been created correctly.

Core Purpose of Financial Statement

The core purpose of a financial statement is to convey information. Consider the following scenario:

> Two economic entities, A and B, each have information about their financial position and financial performance. They must communicate their information to an investor who is making investment decisions which will make use of the combined information so as to draw some conclusions. All three parties (economic entity A, economic entity B, investor) are using a **common set of basic logical principles** (facts, statements, deductive reasoning, inductive reasoning, etc.), **common financial reporting standard**

[22] Charles Hoffman, CPA, *Leveraging the Theoretical and Mathematical Underpinnings of a Financial Report*, http://xbrlsite.azurewebsites.net/2018/Library/TheoreticalAndMathematicalUnderpinningsOfFinancialReport.pdf#page=6

[23] Charles Hoffman, CPA, *General Ledger Trial Balance to External Financial Report*, http://xbrlsite.azurewebsites.net/2018/RoboticFinance/TrialBalanceToReport.pdf

concepts and relations (terms, relations, assertions for US GAAP, IFRS, IPSAS, etc.), and a **common world view** so they should be able to communicate this information fully, so that any inferences which, say, the investor draws from economic entity A's information should also be derivable by economic entity A itself using common basic logical principles, common financial reporting standards (terms, relations, assertions), and common world view; and vice versa; and similarly for the investor and economic entity B.

Building on the Accounting Equation: Elements of a Financial Report

And so now we have a framework for understanding the importance of the elements of a financial report.

Every professional accountant is exposed to the conceptual framework of financial reporting and the elements of a financial report in intermediate accounting. The accounting students might be exposed to different conceptual frameworks, US GAAP[24] in the United States and International Financial Reporting Standards (IFRS)[25] in the rest of the world. Pretty much any significant or useful financial reporting scheme provides a conceptual framework that helps users of that framework understand the framework.

In addition, others publish interpretations of the conceptual framework of reporting schemes and interpretations of the standards that make up a reporting scheme. Two popular interpretations of IFRS are provided by Deloitte via IASPLUS[26] and IFRSBOX[27].

One issue with all of these resources is that they are published in books or using e-paper like HTML and PDF. They are not machine-readable.

Essentially, the elements of a financial statement defined by the FASB[28] and by the IASB[29] are extremely similar but use slightly different terms. I will treat them as similar.

[24] FASB, *Conceptual Framework*, https://www.fasb.org/jsp/FASB/Page/BridgePage&cid=1176168367774
[25] IFRS Foundation, *Conceptual Framework for Financial Reporting*, https://www.ifrs.org/issued-standards/list-of-standards/conceptual-framework/
[26] Deloitte, *IASPLUS*, https://www.iasplus.com/en/news/2018/03/cf
[27] IFRSBOX, *Conceptual Framework for the Financial Reporting*, https://www.ifrsbox.com/ifrs-conceptual-framework-2018/
[28] Elements of Financial Statement Defined by FASB, http://xbrlsite.azurewebsites.net/2019/Core/core-sfac6/
[29] Elements of Financial Statement Defined by IASB, http://xbrlsite.azurewebsites.net/2019/Core/core-ifrs/

Elements of a Financial Statement

In order to better enable XBRL-based financial reporting and the effective audit of XBRL-based financial reports[30], I enhanced the elements of a financial statement defined by the FASB. The enhancements included explicitly defining those elements in machine-readable XBRL, articulating the important associations between those elements, and appending that list of ten elements of a financial reports with other critically important elements that are necessary to construct a complete machine-readable model of a financial report. This particular instantiation is being created for US GAAP. These same ideas can be used for IFRS and other financial reporting schemes. In fact, it is incredibly hard to create a useful or even correct XBRL taxonomy for any financial reporting scheme if you do not provide this sort of high-level framework which form the keystones of the financial reporting scheme.

The FASB defines the following ten interrelated elements of a financial report:

- Assets
- Liabilities
- Equity
- Investments by Owners
- Distributions to Owners
- Comprehensive Income
- Revenues
- Expenses
- Gains
- Losses

The FASB uses the analogy of a "photograph" and a "motion picture" to differentiate the two types of elements[31]. Three elements like a photograph are "assets", "liabilities" and "equity" and are for a point in time. In XBRL terms, they are instants. The others are like "motion pictures", over a period of time, in XBRL terms they are durations.

The FASB explicitly states the components of comprehensive income which include: revenues, expenses, gains, and losses[32].

Note that the balance types, "debit" or "credit", of each of the ten core elements of a financial statement are not articulated by the FASB. However, professional accountants understand

[30] Charles Hoffman, CPA, *Auditing XBRL-based Financial Reports*, http://xbrlsite.azurewebsites.net/2019/Library/AudtingXBRLBasedFinancialReports.pdf
[31] FASB, SFAC 6, page 21, paragraph 20
[32] FASB, SFAC 6, page 21, paragraph 20

these relations implicitly. However, I am specifying the balance types explicitly in my XBRL representation.

Note the term "interrelated". If you read the definitions you can implicitly understand the specific interrelations. The FASB uses the term "articulation" to describe the notion that financial statements are fundamentally interrelated[33]. They result in financial statements that are fundamentally interrelated and connected mathematically. The following two equations articulate the fundamental relationships between all these elements of a financial report. First, as the FASB stated;

> "Comprehensive Income = Revenues - Expenses + Gains - Losses"

The equation above defines the relationship between comprehensive income and its components and the equation below define the relations between the other concepts.

> $0 = (Equity^{T0} + Revenue^{P1} - Expenses^{P1} + Gains^{P1} - Losses^{P1} + InvestmentsByOwners^{P1} - DistributionsToOwners^{P1}) + Liabilities^{T1} - Assets^{T1}$

And so, using both equations, the relations between each of the concepts is crystal clear as long as you understand the balance type (debit, credit) of each of the core elements.

Common Elements of Financial Statement

In order to better create a full set of financial statements it is important to further enhance the core elements of a financial statement with a few more details. As such, the additional 16 core elements were added to this model:

- Current Assets
- Noncurrent Assets
- Current Liabilities
- Noncurrent Liabilities
- Equity Attributable to Controlling Interests
- Equity Attributable to Noncontrolling Interests
- Liabilities and Equity
- Net Cash Flow
- Net Cash Flow from Operating Activities
- Net Cash Flow from Investing Activities
- Net Cash Flow from Financing Activities
- Net Assets

[33] FASB, SFAC 6, page 21 and 22, paragraph 21

- Net Income
- Income from Ordinary Activities of Entity
- Income from Peripheral or Incidental Transactions of Entity
- Other Comprehensive Income

With these additional elements of a financial statements it is possible to create the four primary financial statements such that they resemble at least shell statements.

Common Structures of Financial Statements

Given the 26 common elements of a financial statement (10 defined by FASB/IASB and the 16 that I added to complete the set), there are six structures that are apparent.

- Statement of Financial Position (**Balance sheet**)
- Statement of Net Assets (**Net Assets**)
- Statement of Comprehensive Income (**Comprehensive Income**)
- Statement of Financial Performance (**Income Statement**)
- Statement of Cash Flow (**Cash Flow**)
- Statement of Changes in Equity (**Changes in Equity**)

These structures are explicitly defined in this model.

Four Statement Model with Shell Statements

As such, we can now create the four statements that make up a set of financial statements. Note that these are not yet intended to resemble actual financial statements but they are getting closer.

Remember, this step is to create the smallest but the most meaningful representation within XBRL to communicate several key points. One key point is to show the connections between the four core financial statements which we will do now.

Balance Sheet[34]:

[34] Balance Sheet, Human Readable, http://xbrlsite.azurewebsites.net/2020/core/master-common/evidence-package/contents/index.html#Rendering-BalanceSheet-common_BalanceSheetHypercube.html

Balance Sheet [Line Items]	Period [Axis]	
	2020-12-31	2019-12-31
Assets [Roll Up]		
Current Assets	500	0
Noncurrent Assets	3,000	0
Assets	3,500	0
Liabilities and Equity [Roll Up]		
Liabilities [Roll Up]		
Current Liabilities	0	0
Noncurrent Liabilities	0	0
Liabilities	0	0
Equity [Roll Up]		
Equity Attributable To Controlling Interests	3,000	0
Equity Attributable to Noncontrolling Interests	500	0
Equity	3,500	0
Liabilities and Equity	3,500	0

Comprehensive Income[35]:

Comprehensive Income Statement [Line Items]	Period [Axis]
	2020-01-01 - 2020-12-31
Comprehensive Income [Roll Up]	
Revenues	7,000
(Expenses)	(3,000)
Gains	1,000
(Losses)	(2,000)
Comprehensive Income	3,000

Cash Flow[36]:

[35] Comprehensive Income, Human Readable, http://xbrlsite.azurewebsites.net/2020/core/master-common/evidence-package/contents/index.html#Rendering-ComprehensiveIncome-common_ComprehensiveIncomeStatementHypercube.html

[36] Cash Flow, Human Readable, http://xbrlsite.azurewebsites.net/2020/core/master-common/evidence-package/contents/index.html#Rendering-CashFlow-common_CashFlowHypercube.html

Cash Flow [Line Items]	Period [Axis] 2020-01-01 - 2020-12-31
Net Cash Flow [Roll Up]	
Net Cash Flow Operating Activities	1,500
Net Cash Flow Investing Activities	1,000
Net Cash Flow Financing Activities	1,000
Net Cash Flow	3,500
Assets Roll Forward [Roll Up]	
Assets, Beginning Balance	0
Net Cash Flow	3,500
Assets, Ending Balance	3,500

Note that on a cash flow statement normally the roll forward is for Cash and Cash Equivalents. As we are not yet down to that level of detail, we are using Assets to provide the roll forward and the connection to the balance sheet.

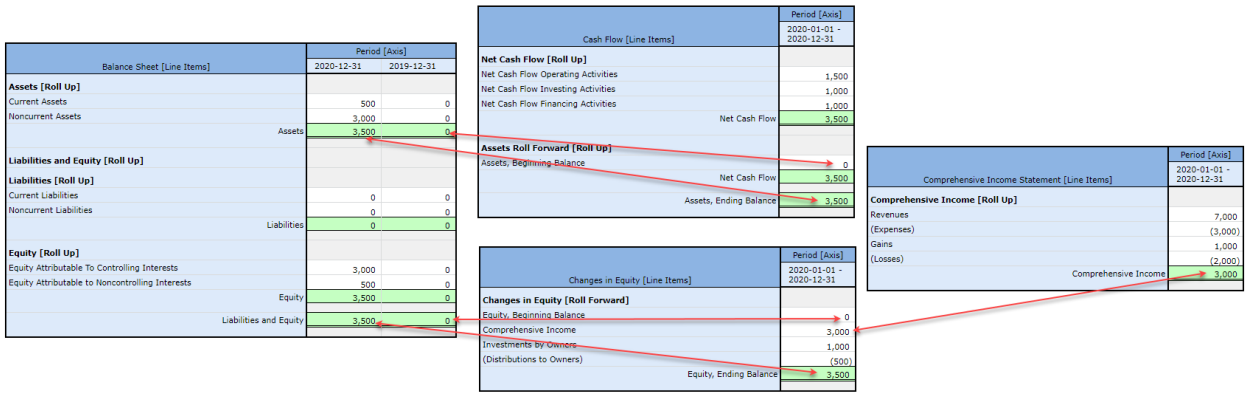
Changes in Equity[37]:

Changes in Equity [Line Items]	Period [Axis] 2020-01-01 - 2020-12-31
Changes in Equity [Roll Forward]	
Equity, Beginning Balance	0
Comprehensive Income	3,000
Investments by Owners	1,000
(Distributions to Owners)	(500)
Equity, Ending Balance	3,500

The four statements above show the details of the statement line items; the graphic below shows the interrelationships between the four primary financial statements[38]:

[37] Changes in Equity, Human Readable, http://xbrlsite.azurewebsites.net/2020/core/master-common/evidence-package/contents/index.html#Rendering-ChangesInEquity-common_ChangesInEquityHypercube.html

[38] Articulation and the Four Core Statement Model, http://xbrlsite.azurewebsites.net/2020/core/master-common/ArticulationFourStatementModel.jpg



The details and the relationships can be tested by running the supporting XBRL taxonomy and XBRL instance that define the elements, the associations between the elements, and the assertions which show mathematical relations between the elements processed by an XBRL formula processor[39]:

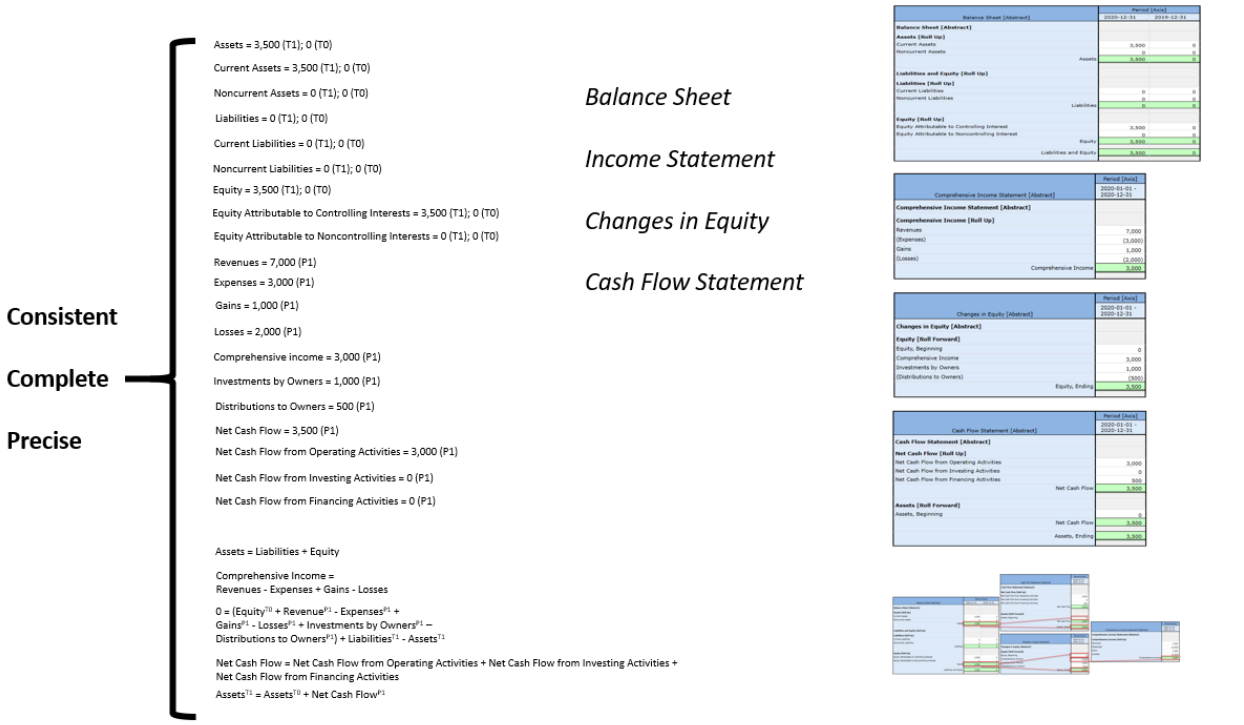
id	satisfied	message
Arithmetic_BS01 (evaluation 1)	satisfied	$Assets=0 = ($Liabilities=0 + $Equity=0)
Arithmetic_BS01 (evaluation 2)	satisfied	$Assets=3500 = ($Liabilities=0 + $Equity=3500)
Arithmetic_BS02 (evaluation 1)	satisfied	$Assets=0 = ($CurrentAssets=0 + $NoncurrentAssets=0)
Arithmetic_BS02 (evaluation 2)	satisfied	$Assets=3500 = ($CurrentAssets=500 + $NoncurrentAssets=3000)
Arithmetic_BS03 (evaluation 1)	satisfied	$Liabilities=0 = ($CurrentLiabilities=0 + $NoncurrentLiabilities=0)
Arithmetic_BS03 (evaluation 2)	satisfied	$Liabilities=0 = ($CurrentLiabilities=0 + $NoncurrentLiabilities=0)
Arithmetic_BS04 (evaluation 1)	satisfied	$Equity=0 = ($EquityAttributableToControllingInterests=0 + $EquityAttributableToNoncontrollingInterests=0)
Arithmetic_BS04 (evaluation 2)	satisfied	$Equity=3500 = ($EquityAttributableToControllingInterests=3000 + $EquityAttributableToNoncontrollingInterests=500)
Arithmetic_CF01 (evaluation 1)	satisfied	$NetCashFlow=3500 = ($NetCashFlowOperatingActivities=1500 + $NetCashFlowFinancingActivities=1000 + $NetCashFlowInvestingActivities=1000)
Arithmetic_IS01 (evaluation 1)	satisfied	$ComprehensiveIncome=3000 = ($Revenues=7000 - $Expenses=3000 + $Gains=1000 - $Losses=2000)
Arithmetic_IS02 (evaluation 1)	satisfied	$ComprehensiveIncome=3000 = ($IncomeFromNormalActivitiesOfEntity=2000 + $IncomeFromPeripheralOrIncidentalTransactionsOfEntity=1000)
Arithmetic_IS03 (evaluation 1)	satisfied	$ComprehensiveIncome=3000 = ($NetIncome=3000 + $OtherComprehensiveIncome=0)
Arithmetic_NA01 (evaluation 1)	satisfied	$NetAssets=3500 = ($Assets=3500 - $Liabilities=0)
Arithmetic_NA01 (evaluation 2)	satisfied	$NetAssets=0 = ($Assets=0 - $Liabilities=0)
RollForward_CF01 (evaluation 1)	satisfied	$Assets_BalanceStart=0 + $NetCashFlow=3500 = $Assets_BalanceEnd=3500
RollForward_SHE01 (evaluation 1)	satisfied	$Equity_BalanceStart=0 + $ComprehensiveIncome=3000 + $InvestmentsByOwners=1000 - $DistributionsToOwners=500 = $Equity_BalanceEnd=3500
CONSISTENCY_AccountingEquation (evaluation 1)	satisfied	$Assets=0 = ($Liabilities=0 + $Equity=0)
CONSISTENCY_AccountingEquation (evaluation 2)	satisfied	$Assets=3500 = ($Liabilities=0 + $Equity=3500)
CONSISTENCY_SFAC6_ElementsOfFinancialStatement (evaluation 1)	satisfied	0= (($Equity_BalanceStart=0 + (($Revenues=7000 - $Expenses=3000) + ($Gains=1000 - $Losses=2000)) + ($InvestmentsByOwners=1000 - $DistributionsToOwners=500)) + ($Liabilities_BalanceEnd=0 - $Assets_BalanceEnd=3500))

[39] Rules validation results, http://xbrlsite.azurewebsites.net/2020/core/master-common/RulesValidationResult.jpg

This verifies that the XBRL-based report and the logical relations articulated via that report are as would be expected. Further, other structures that are not part of the four common statements also proven to be correct and do not conflict with or contradict the four core financial statements.

Consistent, Precise, Complete

Similar to the accounting equation and SFAS 6, the common elements of financial statement; this system can be proven to be properly functioning. Again, the number of terms, structures, assertions, and facts increases but the logical system still fundamentally functions like the accounting equation logical system and the SFAC 6 logical system. The types of things that can go wrong are similar to the accounting equation and SFAC 6 logical systems.



Four Statement Model (Common Elements of Financial Report)

Variability Enabled Using Structures

As is explained in SFAS 6[40], the elements of financial statements are appropriate for economic entities that are enterprises (businesses) or not-for-profit organizations. While some financial report elements might be appropriate for one type of economic entity, they might not be appropriate for another economic entity. The conceptual frameworks of both US GAAP and

[40] SFAC 6, http://xbrlsite.azurewebsites.net/2020/core/master-sfac6/

IFRS anticipates these differences. For example, here are two alternative balance sheet shell formats; one is a classified balance sheet and the other is a net assets style statement of financial position:

Balance sheet alternative 1[41]:

Balance Sheet [Line Items]	Period [Axis]	
	2020-12-31	2019-12-31
Assets [Roll Up]		
Current Assets	500	0
Noncurrent Assets	3,000	0
Assets	3,500	0
Liabilities and Equity [Roll Up]		
Liabilities [Roll Up]		
Current Liabilities	0	0
Noncurrent Liabilities	0	0
Liabilities	0	0
Equity [Roll Up]		
Equity Attributable To Controlling Interests	3,000	0
Equity Attributable to Noncontrolling Interests	500	0
Equity	3,500	0
Liabilities and Equity	3,500	0

Balance sheet alternative 2[42]:

Net Assets [Line Items]	Period [Axis]	
	2020-12-31	2019-12-31
Net Assets [Roll Up]		
Assets	3,500	0
Liabilities	0	0
Net Assets	3,500	0

[41] Balance Sheet, http://xbrlsite.azurewebsites.net/2020/core/master-common/evidence-package/contents/index.html#Rendering-BalanceSheet-common_BalanceSheetHypercube.html

[42] Net Assets, http://xbrlsite.azurewebsites.net/2020/core/master-common/evidence-package/contents/index.html#Rendering-NetAssets-common_NetAssetsHypercube.html

Note that another alternative that is very likely to be necessary is the order of liquidity or unclassified balance sheet. That could have just as well been represented in these common elements of a financial statement representation.

Typically, one financial report will not use both of the above structures within the same report. Typically, one permissible model is used or some other permissible model is used.

Financial statements are not arbitrary or random. Some permissible model is used to represent a financial report within the boundaries specified by some reporting scheme. But any financial statement can both have the appropriate variability that they need but at the same time conform to the conceptual framework of the reporting scheme.

I refer to the approaches an economic entity organizes the elements of a financial statement reporting styles. An analysis of public companies that report to the SEC reveal reporting style[43] patterns used by economic entities that report using US GAAP.

Variability Caused by Alternative Intermediate Components of Comprehensive Income

By far, the most variability that exists within a set of financial statements exists on the income statement. SFAS 6 discusses the notion of intermediate components[44] of comprehensive income:

> "Examples of intermediate components in business enterprises are gross margin, income from continuing operations before taxes, income from continuing operations, and operating income. Those intermediate components are, in effect, subtotals of comprehensive income and often of one another in the sense that they can be combined with each other or with the basic components to obtain other intermediate measures of comprehensive income."

Basically, variability can be caused by choosing to report different common subtotals. Again, this variability is not random or completely arbitrary. There are patterns.

Of the four concepts "revenues", "expenses", "gains", and "losses" there are themes. One them is the notion of something related to an "entity's ongoing major or central operations" (i.e. revenues, expenses) and something "from peripheral or incidental transactions" (i.e. gains, losses). The following are three income statement structures.

Comprehensive income[45]:

[43] US GAAP Reporting Styles, http://www.xbrlsite.com/2018/10K/US-GAAP-Reporting-Styles.pdf

[44] FASB, SFAC 6, page 47, paragraph 77.

[45] Comprehensive Income, Human Readable, http://xbrlsite.azurewebsites.net/2020/core/master-common/evidence-package/contents/index.html#Rendering-ComprehensiveIncome-common_ComprehensiveIncomeStatementHypercube.html

Comprehensive Income Statement [Line Items]	Period [Axis] 2020-01-01 - 2020-12-31
Comprehensive Income [Roll Up]	
Revenues	7,000
(Expenses)	(3,000)
Gains	1,000
(Losses)	(2,000)
Comprehensive Income	3,000

Comprehensive income 2[46]:

Comprehensive Income Statement [Line Items]	Period [Axis] 2020-01-01 - 2020-12-31
Comprehensive Income [Roll Up]	
Income from Normal Activities of Entity	2,000
Income from Peripheral or Incidental Transactions of Entity	1,000
Comprehensive Income	3,000

Comprehensive income 3[47]:

Comprehensive Income Statement [Line Items]	Period [Axis] 2020-01-01 - 2020-12-31
Comprehensive Income [Roll Up]	
Net Income [Roll Up]	
Income from Normal Activities of Entity	2,000
Income from Peripheral or Incidental Transactions of Entity	1,000
Net Income	3,000
Other Comprehensive Income	0
Comprehensive Income	3,000

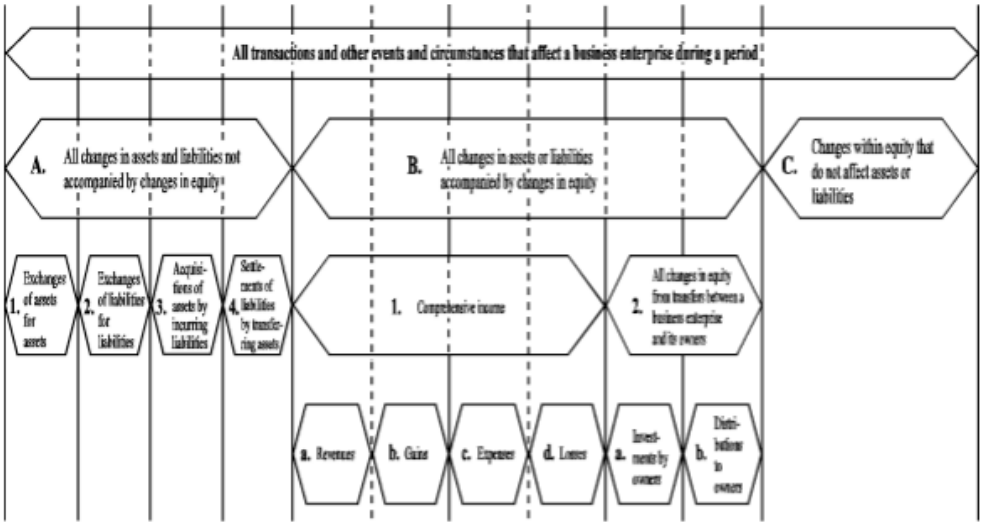
As I explained in my description of a financial report logical system, a **structure** is a set of statements which describe the associations and assertions of the structure. A structure provides context[48]. The

[46] Comprehensive Income 2, Human Readable, http://xbrlsite.azurewebsites.net/2020/core/master-common/evidence-package/contents/index.html#Rendering-ComprehensiveIncome2-common_ComprehensiveIncomeStatementHypercube.html
[47] Comprehensive Income 3, Human Readable, http://xbrlsite.azurewebsites.net/2020/core/master-common/evidence-package/contents/index.html#Rendering-ComprehensiveIncome3-common_ComprehensiveIncomeStatementHypercube.html
[48] Explanation of a Financial Report Logical System in Simple Terms, http://xbrl.squarespace.com/journal/2019/11/1/explanation-of-a-financial-report-logical-system-in-simple-t.html

financial report **model** is a set of structures that are permissible interpretations of and consistent with the logical theory.

Transactions

SFAC 6 provides the following diagram[49] which essentially breaks transactions down into a number of specific categories.



Every transaction which flows through a **journal** and into a **ledger** fits into one of these categories. Further, ultimately every transaction flow through some balance sheet account directly or indirectly via a nominal account that ends up on the balance sheet and can be grouped into some category. For example, below you see the roll forward of cash and cash equivalents and the categories of transactions such as “Collection of Receivables” or “Payment of Accounts Payable” that flow though the general ledger account “Cash and Cash Equivalents”:

Cash and Cash Equivalents [Roll Forward]	Period [Axis] 2018-01-01 - 2018-12-31
Cash and Cash Equivalents [Roll Forward]	
Cash and Cash Equivalents, Beginning Balance	3,000
Collection of Receivables	3,000
Payment of Accounts Payable	(2,000)
Additional Long-term Borrowings	6,000
Repayment of Long-term Borrowings	(1,000)
Capital Additions of Property, Plant and Equipment	(5,000)
Proceeds from Sale of Property, Plant, and Equipment	0
Cash and Cash Equivalents, Ending Balance	4,000

[49] FASB, SFAC 6, page 41, paragraph 64.

Ultimately, every transaction group ends up in the general ledger trial balance[50]:

Trial Balance [Roll Up]	Period [Axis] 2018-12-31	2017-12-31
Trial Balance [Roll Up]		
Cash and Cash Equivalents	4,000	3,000
Receivables	2,000	1,000
Inventories	1,000	1,000
Property, Plant and Equipment	6,000	1,000
Accounts Payable	(1,000)	(1,000)
Long-term Debt	(6,000)	(1,000)
Retained Earnings	(6,000)	(4,000)
Check Sum	0	0

The following is a representation of transactions in XBRL:

Changes Summary [Roll Up]	Period [Axis] 2018-01-01 - 2018-12-31
Changes Summary [Roll Up]	
Collection of Receivables	3,000
Payment of Accounts Payable	(2,000)
Additional Long-term Borrowings 2	6,000
Repayment of Long-term Borrowings 2	(1,000)
Capital Additions of Property, Plant and Equipment 2	(5,000)
Sales 2	4,000
Collection of Receivables 2	(3,000)
Additions to Allowance for Bad Debts	0
Bad Debts Written Off	0
Purchases of Inventory for Sale	2,000
Costs of Sales 2	(2,000)
Inventory Written Off	0
Capital Additions of Property, Plant and Equipment	5,000
Depreciation and Amortization 2	0
Property, Plant and Equipment Written Off	0
Purchases of Inventory for Sale 2	(2,000)
Payment of Accounts Payable 2	2,000
Additional Long-term Borrowings	(6,000)
Repayment of Long-term Borrowings	1,000
Net Income (Loss)	(2,000)
Check Sum Changes	0

Ultimately, transactions can be traced back to a journal entry[51]. Here is a representation of a journal entry[52]:

[50] Trial balance, http://xbrlsite.azurewebsites.net/2019/core/core-trialbalance/evidence-package/contents/index.html#Rendering-TrialBalance-Implied.html

[51] Journal entries representation, http://xbrlsite.azurewebsites.net/2019/core/core-journal/

[52] Journal entry, http://xbrlsite.azurewebsites.net/2019/core/core-journal/evidence-package/contents/index.html#Rendering-JournalEntries_CollectionReceivables-basic_JournalEntriesTable.html

Journal Entries [Line Items]	Period [Axis]	
	2018-01-01 - 2018-12-31	
	Entry [Axis]	
	JE1006 [Member]	All Entries [Member]
	Sequence [Axis]	Sequence [Axis]
	Sequences 1 [Member]	All Sequences [Member]
Transaction Account	basic:CashAndCashEquivalents	
Transaction Category	basic:CollectionReceivables	
Transaction Date	2018-01-01	
Transaction Description	Collection of accounts recivable.	
Collection of Receivables	3,000	3,000

Every transaction works in this manner. Basically, transactions fall into patterns. Some transaction patterns are common, some transaction patterns are less common, and some transaction patterns are cause for investigation. For example, a transaction that affects, say, “Property, Plant, and Equipment” and “Retained Earnings” would be suspicious.

Transactions will be the topic of the next XBRL-based representation of a logical system[53].

[53] Trial balance representation in XBRL, http://xbrlsite.azurewebsites.net/2019/core/core-trialbalance/