<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance Accounting – Overview</td>
<td>2</td>
</tr>
<tr>
<td>Policy Maintenance Systems and the General Ledger</td>
<td>2</td>
</tr>
<tr>
<td>Reserves</td>
<td>3</td>
</tr>
<tr>
<td>Claims</td>
<td>3</td>
</tr>
<tr>
<td>Investment</td>
<td>4</td>
</tr>
<tr>
<td>Reinsurance</td>
<td>5</td>
</tr>
<tr>
<td>Pooling</td>
<td>6</td>
</tr>
<tr>
<td>Risk Based Capital (RBC)</td>
<td>7</td>
</tr>
<tr>
<td>Statutory versus GAAP</td>
<td>7</td>
</tr>
<tr>
<td>The Annual Statement – Overview</td>
<td>8</td>
</tr>
<tr>
<td>Pages, Exhibits, Schedules</td>
<td>8</td>
</tr>
<tr>
<td>Inputs to the Annual Statement</td>
<td>9</td>
</tr>
<tr>
<td>Importing Data</td>
<td>11</td>
</tr>
<tr>
<td>Attachments</td>
<td>11</td>
</tr>
<tr>
<td>Schedule P</td>
<td>12</td>
</tr>
<tr>
<td>Cash Flow</td>
<td>12</td>
</tr>
<tr>
<td>Validations</td>
<td>13</td>
</tr>
<tr>
<td>Filing and Submission</td>
<td>13</td>
</tr>
<tr>
<td>Signatures</td>
<td>13</td>
</tr>
<tr>
<td>State Filings</td>
<td>14</td>
</tr>
<tr>
<td>Premium Tax/Municipal Tax</td>
<td>14</td>
</tr>
<tr>
<td>Basic Accounting</td>
<td>15</td>
</tr>
<tr>
<td>Financial Statements, Recording Transactions, Accrual versus Cash</td>
<td>20</td>
</tr>
<tr>
<td>Investment Accounting</td>
<td></td>
</tr>
<tr>
<td>Useful Formulas and Excel Techniques</td>
<td>32</td>
</tr>
</tbody>
</table>
Insurance Accounting

This book is intended to fill a gap between too much information and too little. It is designed to give someone new to Insurance Accounting a comprehensive overview of the entire insurance accounting and NAIC Filing process. You can certainly get into more detail on specific insurance accounting issues but having a comprehensive overview will help new employees speed up their training and jumpstart their insurance accounting careers.

Overview

Insurance Accounting is one of the most exciting and challenging professions in accounting today. There are so many facets that work together to produce a very comprehensive statement of financial position that is of utmost importance to policyholders and regulators. Consider that an insurance policy has a lot of data. Besides the basic contact and billing information, a policy might have Premium, Dividend, Policy Loan, Agent’s Commission, Valuation and Claims records. Each of these records will interface with the general ledger over time. For instance, when a policy is sold, a premium is received, a commission paid and a reserve for future claims is setup.

Policy Maintenance Systems and the General Ledger

Every night and every month end, the computer systems at an insurance company run their nightly and monthly cycles. The daily cycle might summarize the premiums received or claims paid during the day and transfer that information to other systems like the Agency system that will accumulate then pay commissions on the premiums or the Valuation system that will adjust the reserves for the policy. The transactions entered for the day will be summarized and entered into the General Ledger. The updates to the premium records on the policies will be reconciled back to the daily entry to the general ledger. Keeping everything reconciled so that you can run a report of all the Policy Loan balances on the policy records and tie that out to the Policy Loan account balance on the General Ledger is necessary and vital to the flow of information through the insurance company’s financial reporting system. There are many systems that need to be kept
reconciled to the general ledger. What if the 1099’s produced at year end for the agent’s commissions did not tie out to the commission expense in the general ledger? Do you think someone would question the integrity of the general ledger data?

**Reserves**

For life insurance, a reserve is set up using mortality tables and interest rates to determine the present value of the future claims payments that will be made. The reserves are set up on a mean reserve basis. This is kind of an averaging method to value all the policies as of the middle of their policy year no matter when they were issued. Because of this mean reserve valuation method, the company also needs to record net deferred premium and net uncollected premium assets to compensate for setting up the mean reserve. These assets offset the extra reserve liability which is set up for policies that have not yet paid their premium up to the mean reserve date.

Conversely, unearned premium liabilities are set up to reflect the company’s obligation to provide insurance in the future for premium income they have received in advance.

**Policy**

The Policy systems will hold the detail to back up general ledger amounts such as the policy loan balance or the policy dividends unpaid balance. The Policy system has many tables to keep track of all the facets of a policy.

**Claims**

Claims reserves are maintained for claims that have been reported and claims that may have occurred but have not yet been reported. The reserve for claims that have been reported will be estimated as to the total cost that the insurance company is likely to incur. Similarly, the Incurred But Not Reported (IBNR) claims reserves are estimated based on past experience and average claim costs. An insurance company can track when the event causing the claim occurs and when the claim was actually reported to derive the IBNR claims.
Investment

Investment reserves are unique to the insurance industry. Because of the assumptions made when designing an insurance policy, the regulators want to be sure the premium monies invested for a block of policies is kept invested to fund future claims on those same policies. When interest rates drop substantially, an insurance company can sell the older higher paying bonds for a substantial gain. Then they could use that gain to increase their surplus and as backing for new sales of other insurance policies. They could that is if the NAIC did not require them to set aside those gains and keep them as reserves specifically for the policies from which the initial premium monies were received!

The NAIC has set up an Interest Maintenance Reserve (IMR) and the Asset Valuation Reserve (AVR) and even a Risk Based Capital reserve (RBC) which is its own statement type.

The IMR is designed to capture the realized capital gains and losses that result from changes in the overall level of interest rates and amortize them into income over the approximate remaining life of the investment sold. Companies frequently maintain an Excel worksheet with the Gains and Losses from each year separated into its own row and then they amortize each row over 30 years for example. They add up the current year amortization from all the rows and that becomes their annual IMR Amortization that they are allowed to run through the income statement and close to surplus.

The AVR is designed to address the credit-related risks of the bonds and stocks by calculating a basic contribution, a reserve objective, and a maximum reserve amount. This reserve attempts to smooth the recognition of credit related gains and losses through surplus.

The Risk Based Capital (RBC) statement is a method of establishing the minimum amount of capital appropriate for an insurance company to support its overall business operations in consideration of its size and risk profile. It provides an elastic means of setting the minimum capital requirement in which the degree of risk taken by the insurer is the primary determinant.

A company’s risk-based capital is calculated by applying factors to various asset, premium and reserve items. The factor is higher for those items with greater underlying risk and lower for less risky items. The adequacy of a
company’s actual capital may then be measured by a comparison to its risk-based capital as determined by the formula.

Risk-based capital standards will be used by regulators to set in motion appropriate regulatory actions relating to insurers that show indications of weak or deteriorating conditions. It also provides an additional standard for minimum capital requirements that companies should meet to avoid being placed in conservatorship.

**Reinsurance**

Insurance companies are rated every year by AM Best for example for many things, one of which is the adequacy of their reserves and surplus to fund the future claims. When insurance companies sell a lot of new business, they have to pay a lot of money up front for underwriting and first year commissions for example. All the first year expenses create a drain on surplus which can then cause their ratings to drop. So, insurance companies deliberately and carefully plan which policies they will sell in which areas of the country through which companies in order to generate the most revenue without draining their surplus so that ratings decline.

To maximize revenues across the entire organization, an insurance company might want to reinsure some of its costly new business from one of their younger lower surplus companies to one of their older surplus rich companies. That way they can maximize the use of their surplus across the organization to fund new business selling the most profitable insurance policies.

In addition to funding new policy sales on one company with the surplus from another company, insurers frequently transfer the excess risk to other companies to minimize their exposure to large claims. Many times a newer company with lower surplus will reinsure all its business over a certain dollar amount. For instance if a life insurance company sells a 300,000 dollar face value policy and it is only retaining 100,000 of risk, it will reinsure 200,000 to other reinsurance companies. It will then give the reinsurer 2/3 of the net premiums on the policy in return for their promise to pay 2/3 of all the claims on that policy. There are many different types of reinsurance agreements.

For instance, facultative reinsurance is a reinsurance policy that provides an insurer with coverage for specific individual risks that are unusual or so large
that they aren't covered in the insurance company's reinsurance treaties. This can include policies for jumbo jets or oil rigs for example. Reinsurers have no obligation to take on facultative reinsurance, but can assess each risk individually. By contrast, under treaty reinsurance, the reinsurer agrees to assume a certain percentage of entire classes of business, such as various kinds of auto, up to preset limits.

The premiums that are written on your company are called the Direct premiums. To transfer risk to another insurance company is called Ceding or Ceded. To assume the risk from another insurance company is called Assuming or Assumed.

To derive the income statement amounts net of reinsurance you would take your accrual basis direct premiums minus your ceded premiums plus your assumed premiums.

The reinsurance contract premium and claim amounts with individual reinsurers are detailed in Schedule F for PC and Schedule S for LAH. These schedules give detail to back up the summary reinsurance amounts used in other schedules.

**Pooling**

Pooling is a reinsurance arrangement among affiliated companies, where the subject business written by the pool participants is ceded to the pool lead then retro-ceded among pool participants according to a specified percentage of the total.

The complexity in a pooling arrangement is to report the claims history on schedule P accurately. If the pool percentages change, then the prior year claims activity must be restated so that the claims history will be reported properly.

Generally, the prior year statements and the current year claims activity roll up into a Sum of Pool statement. The Schedule P information is taken from the Sum of Pool using the current pooling percentages. Prior year links to accumulate the Non-Schedule P data are then used to complete the remainder of the statement and create the Filed NAIC Statement.
Risk Based Capital (RBC)

The RBC statement is a statement associated with a specific Annual Statement for a specific company. The RBC judges the adequacy of the surplus for the company. It looks at the quality of the investment, rate of premium growth, claims history and assigns factors used to compute the required capital. If a company grows too quickly for example, the Excess Premium Growth schedule would assign a bigger factor and require more surplus. If the investment portfolio had an inordinate amount of low quality bonds, a larger factor would be assigned requiring more capital. The actual surplus is compared to the RBC computed surplus and depending on how it compares, might bring about greater scrutiny from the regulators.

Statutory versus GAAP

Statutory (STAT) insurance accounting can be thought of as more conservative than Generally Accepted Accounting Principles (GAAP) accounting. GAAP is more of a “going concern” approach whereas STAT is more of a “solvency” approach. GAAP is probably a more realistic measure of how profitable an insurance company is that STAT. For instance in GAAP the costs of acquiring new business such as underwriting and first year commissions are capitalized and amortized to expense over several years. This represents more of a matching approach to revenue recognition. These costs are called Deferred Acquisition Costs, (DAC). Also, bonds will be valued at their fair value for GAAP rather than their amortized cost like STAT usually does.

GAAP policy reserves will be computed differently from STAT reserves. Companies can use their experience to assign interest rates and mortality rates that can be different from those prescribed by STAT.

Policyholder dividends are recorded as liabilities in STAT when they are declared by the Board of Directors. Under GAAP, dividends are assumed to be payable based on experience and intent and are accrued even without a declaration by the Board of Directors.

GAAP accounting will record Deferred Income Taxes to recognize timing differences between the tax return and the ultimate tax liability. STAT does not require recognition of Deferred Income Taxes although many companies
do have this on their STAT statements. Just know that there is a difference in calculation between STAT and GAAP for Deferred Income Taxes.

GAAP does not Non-Admit assets like STAT accounting does.

The Annual Statement - Overview

The annual statement today looks similar to the annual statements from the 1920s except the numbers are not hand written anymore! Generally, an annual statement is a uniform financial statement with many Exhibits and Schedules to show the results of operations in great detail. The exhibits and schedules show the results of operations by line of business and net of reinsurance transactions.

The output from the Annual Statement is compiled into a .Zip file that includes several .PDF files and a couple .txt files. The PDF files are organized into a Key pages (PK), Investment pages (PI) and Other pages (PO). There is one big .txt file that ends in _s.txt. It contains all the data from all the pages in the standard NAIC Filing layout. It is a tab delimited text file. There is also a validations file in the .Zip file. The .Zip file is uploaded to the NAIC website.

Your General Ledger numbers for Assets, Liabilities, Retained Earnings and Income Statement are all fully reported on the first three pages. Amounts from the Income Statement are then further broken out by the Exhibits which follow. For instance Losses Incurred on line 2 of the Statement of Income on a PC statement is detailed on the Underwriting and Expense Exhibit Part 2 – Losses Paid and Incurred. Part 2 has about 30 different lines of business and schedules out the Direct and Assumed and the beginning and ending Unpaid amounts to derive the Incurred losses for the current year.

Pages, Exhibits and Schedules

Amounts on the Assets and Liabilities pages are also more fully detailed on different schedules then totaled and transferred to the balance sheet. On the PC Liabilities page for example, many of the loss and reinsurance liabilities come from the many schedule F parts. On the assets page many of the bond and stock totals come from schedule D pages.
In the Exhibits and Schedules, you will see cash basis expenses converted to accrual basis. Expenses incurred on an accrual basis equals the cash basis expenses paid less the beginning of the year accruals plus the end of the year accruals. Some of the cash basis expenses paid during the year pay off the expenses incurred on an accrual basis last year so they are not current year expenses.

Also you see the premiums and claims scheduled out net of reinsurance as the direct business plus the assumed less the ceded equals the net premiums or net claims.

Another thing you will see in the annual statement is the non-admitting of assets. The exhibit of non-admitted assets decreases the amount that can be recognized on the Assets page for certain assets due to a high probability it is uncollectible or excess risk of default for example. An increase in the non-admitted assets is an expense that is taken to the surplus section of the income statement. This also has to be added back to the cash flow page as discussed later.

One last thing you need to understand in an annual statement is the recognition of unrealized gains and losses. The NAIC has a table in the schedule D1 instructions that sets forth when a bond must be valued at the lower of book or fair based on the NAIC Designation. If a bond is valued at Fair then there will be an amount shown in the unrealized column. The Unrealized column is only for the current year adjustment. It is not life to date. When a bond that was valued at fair last year end is sold for a loss this year, the schedules need to show a reversal of the unrealized loss from prior years in order to recognize the full amount of the realized loss this year. Many people think the reversal of the Unrealized should include the current year change in unrealized also but, if you look at the formula for the Verification Between Periods schedule you will see that is not correct. Unrealized losses would also need to be added back to the cash flow page as discussed later.

**Inputs to the Annual Statement**

The annual statement has many inputs. Certainly the adjusted trial balance from the General Ledger is a main source. Many general ledgers have lines of business codes inherent in their account numbering structure. Also, the account numbers frequently have the assumed and ceded reinsurance codes.
built into the account numbers. The first three pages could be loaded from the trial balance except that many of the cells on those pages actually pull from Exhibits and Schedules further down in the statement.

The Valuation system is another main source of input into the annual statement. It is where all the policy reserve amounts and counts come from. In the LAH statement the reserves are reported on Exhibit 5. In the PC statement the Loss reserves show up on part 2A.

The Claims system also is used extensively to fill out annual statement exhibits. Claims paid and unpaid are scheduled out on Exhibit 8 for LAH statements and Exhibit 2 on PC statements.

Results of operations are also allocated to states and a separate state page is created showing the results of operations by line of business within each state.

Investment systems are responsible for importing much of the data necessary for the investment schedules like all the Schedule D reports for the bonds and stocks. The D reports show the year end carrying value of the assets which may be either the amortized cost or the fair value based on the company type and the NAIC designation. The D reports allocate and report all the amortization and interest income by the par value outstanding during the year. If a mortgage backed bond pays a redemption amount or if a partial sale is recorded, the amortization and interest attributable to that redemption or partial sale must be allocated to it based on the number of days that par value was held for the year.

General expenses are detailed by type and also split to general lines of business. The Analysis of Operations by Line of Business is basically a statement of income for each line of business. The Analysis of Operations by line of Business splits everything from premium and claims to investment income and expenses and taxes across the different lines of business. Sometimes an insurance company completes a Functional Cost Survey to help them allocate fixed costs by line of business based on how much time certain departments spend on certain tasks.

The NAIC has set up Validations and EagleTM has added their own validations to help you balance out the statement. For instance, line 1 of the Liabilities page is labeled Losses and it must tie to the bottom line of Exhibit 2A which breaks out the Losses liability by line of business showing
reinsurance activity also. If these two amounts do not equal a validation rule will fail. If the difference is more than NAIC allows it to be off, the validation is said to be Out Of Tolerance (OOT). If the difference is less than the NAIC allows then it is Out Of Balance (OOB). All OOT must be either cleared by correcting something or explained by entering an explanation. EagleTM validations will never be OOT, if they fail they will show up as OOB.

**Importing Data**

Because the NAIC filing file is such a well-known and accepted format, many systems are designed to create that format and annual statement programs are designed to import files in that format. All the investment accounting programs now create the files to be imported in the NAIC filing format, sometimes called the Annual uniform layout.

There are many other methods to import data into the Annual Statement. Methods ranging from specialized Excel worksheets to .XML files are used. Typically, a company might cell reference their Excel Data into an accepted format for importing if it can be done by simply copying blocks of formulas. Then the properly formatted data is saved as a Text, Tab-Delimited file and that is the file that is imported into the Annual Statement.

Blocks of data can usually be copied and pasted into the annual statement pages also.

**Attachments**

There are many attachments like the Notes to Financials and the Organization Chart where you need to submit both a printable image and also the electronic data. The electronic data is usually typed into a page whereas the printable image would be attached in a ready to print format.

Some attachments like the Audited Financial statement are submitted as PDF files with no electronic data component. The NAIC uses a program to read the PDF and look for sensitive data which they would not want to publish. If you submit a protected PDF, their program cannot search within the file and they will ask you to resubmit the file in an unprotected state.
Schedule P

Schedule P is a PC Claims schedule which is organized by Accident year. So if a claim occurred in 2005 and payments were made on that claim in each of the next three years, you would see how much was paid in each calendar year for the claim arising in 2005. Generally, you only need to import or enter the claims paid in the current year and you would spread them across the accident years they originated in. The prior year claims data would remain the same except for it would be shifted up one and over one to match the new rows and columns on the current year statement. The prior year data plus the current year data is combined to create the published data. The published data for each line of business is then summarized for all lines of business.

Most lines of business in Schedule P have 10 years history and there is also a Prior line. The Prior line represents claim payments made in the current year for accident years prior to the 10 year history.

Some of the lines of business are called “Short Tail Lines” which means that they do not have all 10 years of history broken out into 10 rows. Some of the accident years are combined to report a summary of many accident years.

Cash Flow

The cash flow statement is usually one of the last pages to be completed because it depends on many of the other pages. The cash flow is really quite mechanical. Completing it is simply a matter of tying out all the changes in all the Assets, Liabilities and then including the Net Income and adding back any non-cash income/expense items such as Amortization and Depreciation for example. The change in cash has to equal the cash basis change in all the other Assets, Liabilities and Net income.

Sometimes you actually have to trace the difference in each line item on the balance sheet to the cash flow work-paper in order to get the cash flow to balance to the change in cash. You should use a sources and uses approach. An increase in an asset is a use of cash, to buy a new machine for example. A decrease in an asset is a source of cash, to sell a stock for example. An increase in a liability is a source of cash, to take out a loan for example. A
decrease in a liability is a use of cash, to pay off a loan for example. A non cash income item such as discount amortization on a bond is initially recorded as income but needs to be added back because it is not a source of cash. Similarly, the depreciation on a fixed asset is recorded as an expense but must be added back because it did not require the outlay of cash.

Validations

Some validations check for totals between pages that should tie out if the numbers flow through the statement correctly. Some validations check the totals on the page to make sure they equal the detail. Some validations check for the presence of data when a condition is met.

The General Interrogatories ask question such as will this schedule or that one be filed? If you answer yes to one of those questions and that schedule is not completed you would see a crosscheck warning of the inconsistency.

The cross checks that check for two numbers being equal to each other are presented only once, usually on the page that is closer to the front of the statement.

Filing and Submission

There are annual filing requirements for March 1st, that is the big one, and smaller filing requirements for April 1 and June 1.

The March 1st filing includes most of the statement plus the Actuarial Opinion, Reinsurance Attestation, etc. The April 1st filing includes the Policy Experience Exhibits, the Management Discussion and Analysis and the Supplemental Health Care exhibit. The June 1st filing includes the Audited Financials and the Accountant’s Letter of Qualifications.

Signatures

Companies usually only provide a hard copy of the annual statement to their state of domicile. A word to the wise about signatures….. Signing the Jurat page is done on the completed statements after you get them back from printing, usually right before the due date. However, the executives that need to sign will most likely be out of the office on business at that time. Therefore, many companies print out the signature section of the Jurat page on a large sticker sheet and have the executives sign that before the books
come back from printing. Then they can simply affix the signatures sticker to the printed Jurat page and be ready to file.

**State Filings**

Every state that a company does business in had their own two dozen forms or so that are specific to that state. EagleTM maintains a library of all these forms from every state. They drop form fields on the actual state forms so that the forms will pre-populate with the data from the annual statement. It is usually the balance sheet, company information, state pages and schedule T that have the data which is used to auto-complete these forms. The remainder of the fields can simply be entered manually and then all the fields are saved to a database so you can re-open the form later and see all the data.

**Premium Tax**

Insurance companies have to pay premium taxes to the states where they write their business. EagleTM keeps a library of all the premium tax forms for every state. The tax forms will pre-populate with annual statement data automatically. The form data is saved into a database and the forms automatically calculate the tax liability.

**Municipal Tax**

Within a state, municipalities will charge a tax on premiums written in their geographical location. EagleTM has both a library of municipal tax forms and a geocoding program to help insurance companies determine which municipality the insured policy resides in.
Basic Accounting

This chapter is designed to give accountants and bookkeepers that are not CPAs the background they need to fully understand and master their accounting duties and qualify them for advancements and promotions. This book will help you understand how to record (journalize) transactions and then create financial statements.

Have you ever thought about the physical law which states that to every action there is always an equal and opposite reaction? When you drop a ball, some of the kinetic energy of the ball is transferred to the floor and also used to flex the material in the ball. The remainder of the energy is retained in the ball and it bounces back up but not quite as high. The difference between the starting height and the ending height represents the energy transferred to the floor and flexing motion.

The same is true with double entry bookkeeping. To every action there is always an equal and opposite reaction so to speak. For instance, if I buy an annual insurance policy, my Prepaid Insurance goes up and my Cash goes down by the same amount. Every month we create an adjusting journal entry to record the prepaid insurance going down by one month’s worth of insurance and the insurance expense going up by the same amount.

The Basic Accounting Equation

\[ \text{Assets} = \text{Liabilities} + \text{Owners Equity} + \text{Income} - \text{Expense} \]

Practice writing this formula down several times in shorthand such as:

\[ A = L + OE + Inc - Exp \]

Because Income minus Expenses equals Net Income, we could also write the formula like this:

\[ \text{Assets} = \text{Liabilities} + \text{Owners Equity} + \text{Net Income} \]

Or in shorthand:

\[ A = L + OE + NI \]
This is essentially what all financial statements are showing. The Balance Sheet has an Assets page and a Liabilities page. The Liabilities page has a Liabilities and Owners Equity or Retained Earning section (they both mean the same thing). The Owners Equity section will always have the Net Income added in to the beginning OE to come up with the ending OE. So the Balance sheet is showing that the Assets equal the Liabilities plus the Ending Owners Equity which includes the Net Income. The Net Income comes from the Income Statement. The Income Statement has an Income page and an Expenses page. The Expenses are subtracted from the Income to come up with the Net Income. If the Net Income is negative, that means the Expenses were greater than the Income so we have a Net Loss from operations.

Let us look at a simple set of financial statements to illustrate this concept.

<table>
<thead>
<tr>
<th>Assets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$75.00</td>
</tr>
<tr>
<td>Bonds</td>
<td>150.00</td>
</tr>
<tr>
<td>Prepaid Insurance</td>
<td>25.00</td>
</tr>
<tr>
<td>Equipment</td>
<td>80.00</td>
</tr>
<tr>
<td>Accumulated Depreciation</td>
<td>-5.00 75.00</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td><strong>$325.00</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liabilities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts Payable</td>
<td>$80.00</td>
</tr>
<tr>
<td>Loans Payable</td>
<td>70.00</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td><strong>$150.00</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Owners Equity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning OE</td>
<td>$140.00</td>
</tr>
<tr>
<td>Net Income</td>
<td>35.00</td>
</tr>
<tr>
<td>Ending OE</td>
<td>$175.00</td>
</tr>
<tr>
<td><strong>Total Liabilities and OE</strong></td>
<td><strong>$325.00</strong></td>
</tr>
</tbody>
</table>
Why do Debits (Dr) always equal Credits (Cr)?

We can rearrange the Basic Accounting Equation by adding Expense to each side to come up with:

\[
\text{Assets} + \text{Expense} = \text{Liabilities} + \text{Owners Equity} + \text{Income} - \text{Expense} + \text{Expense}
\]

Which is the same as:

\[
\text{Assets} + \text{Expense} = \text{Liabilities} + \text{Owners Equity} + \text{Income}
\]

Or

\[
A + \text{Exp} = L + OE + \text{Inc}
\]

Practice writing down these equations several times also because this is why debits always equal credits!
Debits always equal Credits because...

Debits increase this side of the formula Assets + Expenses, and

Credits increase this side of the formula Liabilities + Owners Equity + Income.

More completely, Dr Increase and Cr Decrease this side of the formula A + Exp

And, Cr Increase and Dr Decrease this side of the formula L + OE + Inc

You can write this formula on two lines like this:

\[
\begin{align*}
\text{Assets + Expenses} & = \text{Liabilities + Owners Equity + Income} \\
\text{Dr +, Cr -} & = \text{Cr +, Dr -}
\end{align*}
\]

So, Dr Increase this side and Cr Increase this side

And Cr Decrease this side and Dr Decrease this side

Practice writing this two line equation several times.

**How to Journalize Transactions**

Using the formula discussed above:

\[
\begin{align*}
\text{Assets + Expenses} & = \text{Liabilities + Owners Equity + Income} \\
\text{Dr +, Cr -} & = \text{Cr +, Dr -}
\end{align*}
\]
Let us run through some examples of different transactions

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
</table>

**Asset**

- Prepaid Insurance (A+) 30.00
- Cash in Bank (A-) 30.00

To record purchase of Annual Insurance Policy.

- Equipment (A+) 80.00
- Loan Payable (L+) 80.00

To record purchase of equipment with proceeds from Loan.

- Depreciation Expense (Exp+) 5.00
- Accumulated Depreciation (A-) 5.00

To record periodic depreciation.

**Liability**

- Interest Expense (Exp+) 4.00
- Loan Payable (L-) 10.00
- Cash (A-) 14.00

To record monthly loan payment, part of which is interest.

**Expense**

- Automobile Expense (Exp+) 17.00
Cash in Bank (A-) 17.00

To record cash paid to gas station.

Insurance Expense (Exp+) 5.00

Prepaid Insurance (A-) 5.00

To charge off prepaid insurance for time passed.

Income

Cash in Bank (A+) 175

Sales Revenue (Inc+) 175

To record Sale of Merchandise

Investment Accounting

Bonds

First, let’s look at a general overview of bonds and then we can discuss how to record typical transactions. Bonds are promises to pay a face value, the par value, at a specified maturity date in the future. Typically a bond will pay interest every six months at a stated rate of interest, also called the coupon rate. The stated rate of interest is expressed as an annual rate. If a bond pays 6% on a semiannual basis and the par value is 100,000 you will receive 3,000 every 6 months which equals 100,000 * .06 / 2. So the 3,000 interest payment equals the Face Value of 100,000 times the annual interest rate of 6% divided by the number of payments per year which is 2 for a semiannual bond. If this was a monthly bond then the monthly interest amount would equal

500 = 100,000 * .06 / 12 since there are 12 payments every year.
Bonds are not usually purchased at face value. In other words, if we are buying a 100,000 bond we do not typically pay 100,000. The reason we do not pay face value for a bond is that the interest rate it pays is not typically the same as the market rate of interest at the purchase date.

Let’s say the market rate of interest is actually 7%. So we could buy a 7% bond at par. We would probably buy a 6% bond for less than par so that it yields closer to the market rate. Buying a bond for less than par is said to be buying a bond at a Discount. If the market rate was 5% then we would pay more than the face value of a 6% bond which is said to be buying the bond at a Premium.

The difference between our purchase price and the par value charged off to the Income Statement over the life of the bond such that the Interest plus or minus the Amortization will net to earnings being recognized for the bond at approximately the market rate. Specifically, when we buy a bond at a premium or discount, we can calculate the exact yield we will be earning on the bond. That yield is called the Effective Rate.

If we bought the bond at a Premium then the Book Value (purchase cost) will be greater than the Par Value. This excess debit sitting in the Asset account needs to be charged off to the Income Statement periodically as Amortization of Premium. Premium amortization is a Debit to the income statement and represents an expense. Interest income is a credit to the income statement. If we net the Premium amortization debit with the Interest income credit we get actual earnings credit from the bond at less than the interest rate.

If we bought the bond at a Discount then the Book Value (purchase cost) will be less than the Par Value. This shortage needs to be charged off to the Income Statement periodically as Amortization of Discount so that at maturity the Book Value will be equal to the Par Value. Discount amortization is a Credit to the income statement and represents income. Interest income is a credit to the income statement. If we combine the
Discount amortization credit with the Interest income credit we get actual earnings credit from the bond at greater than the interest rate.

This is how we amortize a bond...

Notice the formulas for line 6 are detailed in line 2. Basically you take the Par times the annual stated rate divided by the number of periods per year in column C. This is the interest you will receive. Then you take the Book Value times the annual effective rate divided by the periods per year in column D. This is the actual earnings for the bond. The difference between those two amounts is amortization and it is added to the beginning Book Value to equal the ending Book Value then it starts all over again for the next period. So the effective rate of 6.961% will amortize the bond purchased 1/1/2010 for 99,000 up to 100,000 at the maturity date of Feb 1, 2011.

Solving for the effective rate is an iterative process. You will need to try this two or three times before you find the exact effective rate so that Book = Par at the maturity date. What you do is first take a guess at the effective rate to get close and then see how much you are off at the
maturity date. For instance in the above example, if we first put in .067, the ending book value will be 99,709.20 which is different from the par of 100,000 by 290.80. If we change the effective rate to .069 the book value ends up at 99,931.97. So, if a .002 change in the effective rate moves the book value at maturity date by 222.77 = 99,931.97 − 99,709.20 how much of a change to the effective rate will move the book value by our difference, 290.80?

The way you solve this is by using a proration formula like this

.002 / 222.77 is proportional to X / 290.80

You read this like so: .002 is to 222.77 as X is to 290.80.

To solve a proportion, you cross multiply and solve for X.

\[
\frac{.002}{222.77} \text{ is proportional to } \frac{X}{290.80}
\]

So,

\[
222.77 \times X = .002 \times 290.80
\]

Or,

\[
X = .5816 / 222.77 \text{ (divide both sides by } 222.77 \text{ to get rid of it on the left side)}
\]

\[
X = 0.0026107644655923149436638685639898
\]

Then we add this number to our original .067 to equal .0696107644656.

If we use that number as the effective rate in the amortization table the book value ends up as 100,000.09 at the maturity date a difference of 9 cents. The reason it is not exact is because this is a geometric function, not a straight line function. You would have to solve the formula again like this to get an exact 100,000.00 book value at maturity date....

If a difference of .00061076446 moves the book value by 68.12 = 99931.97 − 100000.09 then how much change to the effective rate would move the book value by 68.03?
Now that we know more about bonds and how to journalize basic transactions, let us look at how we would record some typical bond transactions.

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond (A+)</td>
<td>95,000</td>
</tr>
<tr>
<td>Cash in Bank</td>
<td>95,000</td>
</tr>
</tbody>
</table>

Record purchase of bond.

| Bond (A+)              | 50                      |
| Discount Amortization (Inc+) | 50                |

Record periodic amortization of discount.

| Cash in Bank (A+)       | 1,200                   |
| Discount Amortization (Inc+) | 50                |
| Bond (A net -)          | 50 1,000                |
| Interest Income (Inc+)  | 200                      |

To record monthly interest of 200, monthly amortization of 50 and mortgage paydown of 1,000. Notice the net credit to the income statement is $250 although the bond only pays $200.

| Bond                  | 25                      |
| Interest Receivable   | 100                     |
| Discount Amortization | 25                      |
| Interest Income       | 100                     |

To record Accrued Interest and Amortization for the end of the month to recognize half a month’s worth of interest and amortization since the bond pays on the 15th every month.
<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash in Bank (A+)</td>
<td>100,200</td>
</tr>
<tr>
<td>Interest Income (Inc+)</td>
<td>200</td>
</tr>
<tr>
<td>Discount Amortization (Inc+)</td>
<td>50</td>
</tr>
<tr>
<td>Bond (A net -)</td>
<td>50 100,000</td>
</tr>
</tbody>
</table>

To record Maturity of Bond along with final interest payment and final Amortization adjustment.

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash in Bank (A+)</td>
<td>94,000</td>
</tr>
<tr>
<td>Realized Loss (Exp+)</td>
<td>225</td>
</tr>
<tr>
<td>Bond (A-)</td>
<td>94,100</td>
</tr>
<tr>
<td>Interest Income (Inc+)</td>
<td>125</td>
</tr>
</tbody>
</table>

To record Sale of Bond for $94,000 cash which includes $125 of interest income.

The Sale transaction illustrates a formula you should memorize to record bond sales.

- **Total Cash** from Sale including interest is 94,000
- **Minus Interest** of 125
- **Equals Consideration** of 93,875
- **Less Book Value** of 94,100
- **Equals Gain (Loss) (225)**
Partial Sales and Calls

You should recognize interest income and amortization up to the settlement date of the sale or call. This can be done by prorating between scheduled payment dates on the amortization schedule. For instance if the settlement date of the sale is 90 days from the last semiannual payment, you can take 90/180 of the next scheduled payment amounts for interest and amortization times the par value sold ratio to determine the interest and amortization to record on the sale transaction. By doing this, you will have the correct Interest and Book Value to subtract from the Total Cash so that the Realized gain or loss is correct. You will also need to adjust the amortization schedule to show the partial sale/call inserted into the schedule and the reduced amount of par value going forward in future periods. See formula for calculating Gain (Loss) above.

Permanent Declines

If a bonds value has substantially declined because of credit risk and there is little likelihood that the value will improve, a permanent decline will write down the Book Value and the Cost Basis to the Market or Fair value. You would not write down the Tax Basis though. This write down is recorded as a debit to Realized Loss (Exp +) and a credit to Book Value (A-). The realized loss is reported in the Other Than Temporary Impairments column on D part 1.

Mortgage Backed Bonds

Mortgage backed bonds pay you some principal along with the interest each month. When you make your mortgage payment on your home part of your payment is interest and part is principal. It is the same with mortgage backed bonds. The issuer passes along the return of principal to the bond holder each month. When an underlying mortgage defaults, if the mortgage is secured, then the bond holder can receive the foreclosed amount also which effectively accelerates the return of principal. The rate of prepayment is sometimes published as a PSA or CPR factor which can be used to project a repayment stream on the amortization schedule. First, let’s talk about a mortgage backed bond without the PSA and CPR factors.
When you purchase a mortgage backed bond the amortization schedule is computed using a specific effective interest rate. When the paydowns come in, you need to recognize some additional amortization equal to the present value of the future amortization you would have recognized had you held that par value. Or, stated another way, if you knew when you bought the bond that you were going to receive this par value, how much additional amortization would you have already recognized to record this par value being redeemed. Either way, recognizing additional amortization so that you can hold the effective rate constant so that the Book Value will still equal the Par Value at maturity date is called the “Retrospective Method”. Alternatively, you could change the effective rate on the amortization schedule which would spread the additional amortization over the remaining life which is called the “Prospective Method”. Practically though everyone uses the Retrospective Method. The Retrospective Method is recommended by auditors.

Stepped Bonds

Stepped bonds will vary the rate of interest that they are going to pay you over the life of the bond. This makes for an interesting amortization schedule! If a bond pays a below market rate at the beginning, like 2% then 4% then an above market rate at the end like 6% then 8% for instance, the effective interest rate might be 5% for the life of the bond. In this case, the amortization schedule will show discount amortization in the beginning and premium amortization at the end.

Treasury Inflation Protected Bonds (TIPS)

TIPS bonds vary the amount of Par they will be paying based on an inflation index. If inflation goes up then the amount of par you own will go up as well. When the par value goes up you will now be amortizing to this new par value. The par can go down also! The NAIC wants you to report the Fair Value of the bond in the Carrying Value column. So, TIPS bonds will necessarily have an Unrealized amount reported on D1 and also an amortization amount. The change in the Fair Value for the year net of the amortization is what is shown in the Unrealized column. As if that was not enough, the NAIC would also like you to report the Original Issued Par Value for the bond in the Par Value column, not the par you currently own for TIPS bonds.
Valuation of Bonds for the Annual Statement

There is a Carrying Value column on Schedule D part 1 of the annual statement which is usually the Book Value, also known as the Amortized Cost. However, depending on the NAIC Designation, the Carrying Value might be the Lower of Book Value or Fair Value. These rules depend on the type of insurance company. For Life companies, if a bond is classified with an NAIC Designation of 6 then you must enter the lower of fair value or amortized cost. For Property and Casualty and Health companies, if a bond is classified with an NAIC Designation of 3, 4, 5 or 6 then you must enter the lower of fair value or amortized cost. The Securities Valuation Office has published a cross reference between the Moody’s and S&P Ratings and the NAIC Designations, see below.

Comparison of NRSRO’s and NAIC/SVO Rating Definitions

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA, AA, A</td>
<td>AAA, AA, A</td>
<td>AAA, AA, A</td>
<td>NAIC 1</td>
</tr>
<tr>
<td>BBB</td>
<td>Baa</td>
<td>BBB</td>
<td>NAIC 2</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>B</td>
<td>NAIC 3</td>
</tr>
<tr>
<td></td>
<td>Caa, Ca, C</td>
<td>CCC, CC, C</td>
<td>NAIC 4</td>
</tr>
<tr>
<td></td>
<td>C, DDD, DD, D</td>
<td>Caa, Ca, C</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
When a bond is reporting the Fair Value amount in the Carrying Value column on Schedule D part 1, there will typically be an unrealized gain or loss amount reported as well. Some people mistakenly assume the Unrealized column should report the life to date unrealized adjustment recognized on the bond but this is not always the case. Keep in mind when creating the Verification Between Periods (DVER) schedule you are explaining the difference between the beginning of the year and the end of the year carrying value amounts. The Unrealized column amounts are part of that formula.

The DVER is replicated here to help you understand the situation, see below. Notice the Unrealized coming in from Schedule D Part 1 on line 4.1. Basically, the DVER proves the following (Simplified by intent) formula to be true taking amounts from the Schedule D reports.

\[
\text{Beginning Book/Carrying Value} + \text{Purchases} + \text{Amortization} + \text{Unrealized} - \text{Realized Loss from Permanent Declines} - \text{Book Value Sold} = \text{Ending Book Value}.
\]

Actually, the DVER does not subtract the Book Value Sold, it grosses that up by subtracting the Consideration on the Sale adding back the Realized Gain on the Sale and subtracting out the Realized Loss on the Sale which equals the Book Value Sold. Additionally, it does not just add the amortization; it adds the discount amortization and subtracts the premium amortization.
If the bond was valued at Fair Value for both the beginning and end of the period then the unrealized columns will equal the current year Fair Value minus the prior year fair value minus the current year amortization. In other words because they also need to report the amortization, it must be netted into the total fair value change.

If the bond was valued at Book Value for the beginning of the year and Fair Value at the end of the year the unrealized column will equal the current year fair value minus the current year amortized cost.

If the bond was valued at Fair Value for the beginning of the year and Book Value at the end of the year the unrealized column will equal the prior year amortized cost minus the prior year fair value.
## Stocks

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocks (A+)</td>
<td>75,000</td>
</tr>
<tr>
<td>Cash in Bank (A-)</td>
<td>75000</td>
</tr>
</tbody>
</table>

To record Stock Purchase

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash in Bank (A+)</td>
<td>38</td>
</tr>
<tr>
<td>Dividend Income (Inc+)</td>
<td>38</td>
</tr>
</tbody>
</table>

To record dividend income received

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair Value Increase (A+)</td>
<td>375</td>
</tr>
<tr>
<td>Unrealized Gain (OE+)</td>
<td>375</td>
</tr>
</tbody>
</table>

To record Fair Value Adjustment

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash in Bank</td>
<td>25</td>
</tr>
<tr>
<td>Stocks</td>
<td>25</td>
</tr>
</tbody>
</table>

To record Liquidating Dividend as return of cost basis

Stock Split – No adjustment necessary to dollar balances. Only need to adjust the total number of shares and the per share amounts.
Useful Formulas and Excel Techniques for Accountants

Being able to sort a block of data by Account Number for instance and then write a formula to automatically subtotal it can be useful if you have a large set of data. The way you solve this problem is to break it up into a few smaller formulas. First you need an indicator column to test for when the account number changes. I like to put a 1 on the first new account number row and 0 on all the other rows. The formula in C4 below says if A4 is the same as the previous account number A3 then put a 0 otherwise put a 1. So we get a 1 on the first row of each new account number set. The formula in D4 says if C4 = 1 then we are starting a new account number set so add just B4 otherwise add B4 plus D3 which would be the running total of this account number set. The formula in E4 says if C5 = 1 then the next row is a new account number set so report D4, the running total of this current account number set otherwise enter a blank.
Solving a Proration Formula

As discussed in the Bond effective interest rate section, solving a proportion is one of the most useful equations for accountants. Let us look at another
example. Consider two lots of the same bond, Bond A has 77,234 of par and Bond B has 52,978 of par. If bond A received $573.25 of interest for the month, how much interest did bond B receive assuming they both pay the same interest rate?

The way you solve this is by using a proration formula like this:

573.25 / 77,234 is proportional to X / 52,978

You read this like so: 573.25 is to 77,234 as X is to 52,978.

To solve a proportion, you cross multiply and solve for X.

\[
\frac{573.25}{77,234} \text{ is proportional to } \frac{X}{52,978}
\]

So,

\[
77,234 \times X = 573.25 \times 52,978
\]

Or,

\[
77,234 \times X = 30,369,638.5
\]

\[
X = \frac{30,369,638.5}{77,234} \text{ (divide both sides by 77,234 to get rid of it on the left)}
\]

\[
X = 393.22
\]

So the 52,978 par value bond should have received 393.22 of interest.