

# **A Teaching note for the risk management and insurance instructors and students: SAP accounting example for a property & casualty firm**

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## **Abstract**

There are limited number of published resources that explain the Statutory Accounting Principles (SAP) for the risk management and insurance students. We provide a teaching note that shows balance sheet and income statement entries for a property & casualty firm using a simple example.

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## **Introduction**

Teaching SAP for the property & casualty firms can be challenging for instructors without having a good example. We provide a simple example for the instructors and students of the risk management and insurance.

Mooney et al. (1995) introduce a good example but they do not tie their balance sheet entries to an income statement. Rejda (2011) and Vaughan and Vaughan (2008) provide some sections of balance sheet entries but do not have a complete presentation of an example for both balance sheet and income statements.

Our example considers a stock insurance firm. First, we introduce the assumption on Table 1 for the P&C Corporation.

### **Table 1: Assumptions for P&C Corporation**

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1. P&C Corp. just started its operations the first time.
  2. Policies are issued once at the beginning of each year.
  3. There are 2,000 policies written with each \$500 premium. Therefore, total net premium written is \$1,000,000 ( $=500 \times 2,000$ ).
  4. P&C Corp. is a stock insurance company and issues 10,000 common stock shares with \$20 price generating total equity of \$200,000 ( $=\$20 \times 10,000$ ).
  5. Investment income is equal to \$100,000 after one-year operations (interest
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earnings)

6. P&C Corp. pays the expected insurance losses and other expenses every 6 months.
  7. According to the actuaries of P&C Corp., 60% of the net premium is used to pay out the expected insurance losses.
  8. In addition, 20% and 10% of the net premiums are for Loss Adjustment Expenses (LAE) and the commissions to agents and brokers respectively.
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P&C Corp. accepts 2,000 insurance policies for the year 2014 and \$500 premium per policy is received at the beginning of each year. Therefore, the P&C Corporation has \$1,000,000 in cash at the beginning of 2014. In addition to the premiums, P&C Corp. raises \$200,000 by issuing 10,000 shares with \$20 price per share, and therefore total equity capital is \$200,000 (= \$20x10,000).

### Balance Sheet Entries for the P&C Corporation

Table 2 exhibits that, on December 31, 2013, P&C Corporation has not started its operations with \$1,200,000 (\$1,000,000 from premiums + \$200,000 from sales of new stocks) of total assets credited to "Cash and Investments" item under ASSETS. Also, all the premiums received from the policyholders are considered as "Unearned Premiums" under LIABILITIES. In addition, "Loss Reserves," "Loss Adjustment Expenses," and "Commissions to Agents and Brokers" take a value of \$0 under LIABILITIES. The stock sales receipts are \$200,000 and credited to "Capital" item and there is no "Surplus" yet.

**Table 2:** Balance sheet of P&C Corporation before starting its operations on December 31, 2013

| ASSETS               |             | LIABILITIES AND SURPLUS              |             |
|----------------------|-------------|--------------------------------------|-------------|
| Cash and Investments | \$1,200,000 | Unearned Premiums                    | \$1,000,000 |
|                      |             | Loss Reserves                        | \$0         |
|                      |             | Loss Adjustment Expenses (LAE)       | \$0         |
|                      |             | Commissions to Agents and Brokers    | \$0         |
|                      |             | Capital                              | \$200,000   |
|                      |             | Surplus                              | \$0         |
| <b>TOTAL ASSETS</b>  |             | <b>TOTAL LIABILITIES AND SURPLUS</b> |             |

Table 3 shows that after six-months on June 30, 2014, \$500,000 of \$1,000,000 "Unearned Premiums" are earned. Now, P&C Corporation prepares to pay out its expenses. LIABILITIES show forecasted losses and expenses to be: \$300,000 for "Loss Reserves," \$100,000 for "Loss Adjustment Expenses," and \$50,000 for "Commissions to Agents and Brokers." The remaining \$50,000 represents forecasted leftover after the money is allocated for the losses and expenses, and it is recorded in the "Surplus" item.

**Table 3:** Balance sheet of P&C Corporation after six-months before paying out its losses and expenses on June 30, 2014

| ASSETS               |                    | LIABILITIES AND SURPLUS              |                    |
|----------------------|--------------------|--------------------------------------|--------------------|
| Cash and Investments | \$1,200,000        | Unearned Premiums                    | \$500,000          |
|                      |                    | Loss Reserves                        | \$300,000          |
|                      |                    | Loss Adjustment Expenses (LAE)       | \$100,000          |
|                      |                    | Commissions to Agents and Brokers    | \$50,000           |
|                      |                    | Capital                              | \$200,000          |
|                      |                    | Surplus                              | \$50,000           |
| <b>TOTAL ASSETS</b>  | <b>\$1,200,000</b> | <b>TOTAL LIABILITIES AND SURPLUS</b> | <b>\$1,200,000</b> |

Table 4 shows that, the following day on July 1, 2014, P&C Corporation pays for its losses and expenses. Thus, "Cash and Investments" item under ASSETS are reduced by \$450,000 (Loss Reserves + LAE + Commissions to Agents and Brokers = \$300,000 + \$100,000 + \$50,000) to \$750,000 from \$1,200,000. Additionally, the reserves and expenses items are reduced to \$0 after the payment for losses and expenses are made.

**Table 4:** Balance sheet of P&C Corporation after paying out its losses and expenses on July 1, 2014

| ASSETS               |                  | LIABILITIES AND SURPLUS              |                  |
|----------------------|------------------|--------------------------------------|------------------|
| Cash and Investments | \$750,000        | Unearned Premiums                    | \$500,000        |
|                      |                  | Loss Reserves                        | \$0              |
|                      |                  | Loss Adjustment Expenses (LAE)       | \$0              |
|                      |                  | Commissions to Agents and Brokers    | \$0              |
|                      |                  | Capital                              | \$200,000        |
|                      |                  | Surplus                              | \$50,000         |
| <b>TOTAL ASSETS</b>  | <b>\$750,000</b> | <b>TOTAL LIABILITIES AND SURPLUS</b> | <b>\$750,000</b> |

On Table 5, after six-month period on December 31, 2014, the firm earns the remaining "Unearned Premiums" of \$500,000, and prepares to payout its losses and expenses again. LIABILITIES items are credited as: \$300,000 for "Loss Reserves," \$100,000 for "Loss Adjustment Expenses," and \$50,000 for "Commissions to Agents and Brokers." The remaining \$50,000 represents the leftover is recorded as "Surplus" after the money is allocated for the losses.

**Table 5:** Balance sheet of P&C Corporation after one-year period of operations just before paying out its losses and expenses on December 31, 2014

| ASSETS               |           | LIABILITIES AND SURPLUS           |           |
|----------------------|-----------|-----------------------------------|-----------|
| Cash and Investments | \$750,000 | Unearned Premiums                 | \$0       |
|                      |           | Loss Reserves                     | \$300,000 |
|                      |           | Loss Adjustment Expenses (LAE)    | \$100,000 |
|                      |           | Commissions to Agents and Brokers | \$50,000  |

|              |           |                               |           |
|--------------|-----------|-------------------------------|-----------|
|              |           | Capital                       | \$200,000 |
|              |           | Surplus                       | \$100,000 |
| TOTAL ASSETS | \$750,000 | TOTAL LIABILITIES AND SURPLUS | \$750,000 |

Table 6 presents the balance sheet items of P&C Corporation after a full one-year period of operations. Under its ASSETS, "Cash and Investments are equal to \$300,000 (= \$200,000 of stock receipts + \$100,000 operating profits). LIABILITIES are all currently zero and SURPLUS section has "Capital" equal to \$200,000 and "Surplus" equal to \$100,000 from the operating profits owed to the stockholders.

**Table 6:** Balance sheet of P&C Corporation after one-year period and paying out its losses and expenses on December 31, 2014

|                      |           |                                   |           |
|----------------------|-----------|-----------------------------------|-----------|
| ASSETS               |           | LIABILITIES AND SURPLUS           |           |
| Cash and Investments | \$300,000 | Unearned Premiums                 | \$0       |
|                      |           | Loss Reserves                     | \$0       |
|                      |           | Loss Adjustment Expenses (LAE)    | \$0       |
|                      |           | Commissions to Agents and Brokers | \$0       |
|                      |           | Capital                           | \$200,000 |
|                      |           | Surplus                           | \$100,000 |
| TOTAL ASSETS         | \$300,000 | TOTAL LIABILITIES AND SURPLUS     | \$300,000 |

Finally, Table 7 shows when firm start its operations for the second year by issuing new insurance policies worth \$1,000,000. ASSETS are now \$1,350,000 (= \$1,000,000 of new insurance policies \$50,000 of interest and dividend earnings + \$200,000 of stock receipts + \$100,000 operating profits in 2014). LIABILITIES have \$1,000,000 credited to "Unearned Premiums" from the newly issued insurance policies. Since, it is the beginning of the year, other liability items are all equal to zero. "Capital" is still equal to \$200,000 because of the common stocks issued last year, and "Surplus" is now \$150,000 because of the addition of retained earnings of \$50,000 to the previous operating earnings of \$100,000.

**Table 7:** Balance sheet of P&C Corp. before starting to the next year's operations and issuing new policies worth of \$1,000,000 on January 1, 2015 (investment income added)

|                      |             |                                   |             |
|----------------------|-------------|-----------------------------------|-------------|
| ASSETS               |             | LIABILITIES AND SURPLUS           |             |
| Cash and Investments | \$1,350,000 | Unearned Premiums                 | \$1,000,000 |
|                      |             | Loss Reserves                     | \$0         |
|                      |             | Loss Adjustment Expenses (LAE)    | \$0         |
|                      |             | Commissions to Agents and Brokers | \$0         |
|                      |             | Capital                           | \$200,000   |
|                      |             | Surplus                           | \$150,000   |

|              |             |                               |             |
|--------------|-------------|-------------------------------|-------------|
| TOTAL ASSETS | \$1,400,000 | TOTAL LIABILITIES AND SURPLUS | \$1,400,000 |
|--------------|-------------|-------------------------------|-------------|

## Income Statement Entries for the P&C Corporation

Table 8 shows after one-year of operations, how the income statement of P&C Corporation may look like. "Premium Earned" and "Premium Written" are assumed to be equal. Thus, this implies that the premiums from all the written insurance contracts are collected. "Premium Earned" is \$1,000,000 and we add "Investment Income" from interest earnings, and therefore the total revenues are equal to \$1,100,000. We deduct "Net Losses Incurred" of \$600,000, "Lost Adjustment Expenses" of \$200,000, "Commissions" of \$100,000 paid to brokers and agents, and Premium Taxes of \$50,000 to be paid to the state at 5% rate. "Earnings Before Taxes" is the taxable income and with having 30% of taxes, \$45,000 taxes is paid. The remaining "Net Income" is divided as distribution to the stockholders of \$55,000 and \$50,000 of retained earnings.

**Table 8:** Income Statement of P&C Corp. on December 31, 2014

|                             |             |
|-----------------------------|-------------|
| <b>REVENUES</b>             |             |
| Premium Earned              | \$1,000,000 |
| Investment Income           | \$100,000   |
| <b>EXPENSES</b>             |             |
| Net Losses Incurred         | \$600,000   |
| Loss Adjustment Expenses    | \$200,000   |
| Commissions                 | \$100,000   |
| Premium taxes (5%)          | \$50,000    |
| <b>GENERAL EXPENSES</b>     |             |
| Earnings Before Taxes (EBT) | \$150,000   |
| Federal Taxes (30%)         | \$45,000    |
| Net Income                  | \$105,000   |
| Dividends                   | \$55,000    |
| Retained Earnings           | 50,000      |

## Conclusion

We simplify the presentation of the SAP main entries of a P&C firm for students and instructors by providing a complete example for both balance sheet and income statements items. Thus, the students and instructors can easily follow how to record balance sheet entries when a Property & Casualty firm issues policies and earns investment income as it revenues, and how it records its losses, expenses, capital, and surplus. Further, the income statement entries enforce the student learning with SAP.

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