Segment: Accounting Process

Topic: Double-Entry Framework

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Introduction

A company enters into a variety of transactions that affect its financial position and financial performance. The accounting process recognises these transactions using a double-entry framework.

Learning Objectives

At the end of this topic, you will be able to:

- identify the components in the accounting equation
- state the effect of transactions on the accounting equation
- record business transactions using the double-entry framework.

1. Accounting Equation

Fig.1: Accounting Equation

Recall that the fundamental accounting equation is as follows:

Assets = Liabilities + Owners' Equity

Now, you will learn how to analyse business transactions and how they affect the elements in the accounting equation: assets, liabilities and owners' equity. You will notice that each transaction has a dual (two-sided) effect on the accounting equation. The presence of a dual effect is crucial in order to ensure that the accounting equation holds true at all times. You will also notice that some transactions have multiple effects on the accounting equation. However, the sum of the effects should always ensure that the accounting equation equates.

Before examining the dual effect of any business transaction on the accounting equation, it is useful to expand the accounting equation into its components. Remember that owners' equity comprises two components: contributed capital and retained earnings. Based on this, the accounting equation can be expanded as follows:

Assets = Liabilities + [Contributed Capital + Retained Earnings]

- *Contributed capital* at the end of a reporting period is calculated as contributed capital at the beginning of a reporting period plus new equity issued during the reporting period minus equity retired during the reporting period.
- *Retained earnings* at the end of a reporting period are calculated as retained earnings at the beginning of a reporting period plus reported profit (net income) for the reporting period minus dividends declared during the reporting period. Therefore, an increase in net

income increases retained earnings and owners' equity. On the other hand, an increase in dividends declared decreases retained earnings and owners' equity. Based on this, the accounting equation can be expanded as follows:

Assets = Liabilities + [(Beginning Contributed Capital + New Equity - Equity Retired) + (Beginning Retained Earnings + Net Income - Dividends)]

- Finally, net income equals revenues minus expenses. Therefore, an increase in revenues increases net income and increases owners' equity. On the other hand, an increase in expense decreases net income and decreases owners' equity. Based on this, the accounting equation can be expanded as follows:

Assets = Liabilities + [(Beginning Contributed Capital + New Equity – Equity Retired) + (Beginning Retained Earnings + Revenues – Expenses – Dividends)]

2. Transaction Analysis

The effect of business transactions on the accounting equation is illustrated in the example below.

Assume that a small computer service company was established on 1 January 2019. The name of the company is XYZ Computers. Assume that during January in the fiscal year 2019, XYZ Computers entered into the following business transactions.

Effect of Business Transaction on the Accounting Equation

Transaction 1

On 1 January 2019, the owners of XYZ Computers invested US$100,000 cash in the business.

This transaction results in an increase in both assets (Cash) and owners' equity (Contributed Capital) by US$100,000. It is illustrated in the table below.

Assets	= Liabilities	+ Owners' Equity
+US$100,000		+US$100,000

Transaction 2

On 5 January 2019, XYZ Computers purchased office supplies for US$5,000 and paid for them in cash.

This transaction results in an increase in one type of assets (Office Supplies) and a decrease in another type of assets (Cash) by US$5,000.

Assets	= Liabilities	+ Owners' Equity
+US$5,000 – US$5,000		

Transaction 3

On 7 January 2019, XYZ Computers provided computer services to AAA Construction Company for US$10,000 and was paid in cash.

This transaction results in an increase in assets (Cash) and an increase in owners' equity (Service Revenues) by US$10,000. Recall that an increase in revenue results in an increase in net income (a component of retained earnings).

Assets	= Liabilities	+ Owners' Equity
+ US$10,000		+ US$10,000

Transaction 4

On 15 January 2019, XYZ Computers paid US$7,000 as wages in cash.

This transaction results in a decrease in assets (Cash) and a decrease in owners' equity (Salaries and Wages Expenses) by US$7,000. Recall that an increase in expenses results in a decrease in net income.

Assets	= Liabilities	+ Owners' Equity
– US$7,000		– US$7,000

Transaction 5

On 20 January 2019, XYZ Computers provided computer services to AAA Construction Company for US$10,000. AAA Construction paid US$3,000 in cash and agreed to pay the balance on 15 February 2019.

This transaction results in an increase in owners' equity (Service Revenues) by US$10,000, an increase in assets (Cash) by US$3,000 and an increase in assets (Accounts Receivables) by US$7,000. Note that while this transaction has more than two effects on the accounting equation, the sum of the effects ensures that the accounting equation holds true.

Assets	= Liabilities	+ Owners' Equity
+US$3,000 +US$7,000		+US$10,000

Transaction 6

On 30 January 2019, XYZ Computers borrowed US$30,000 from the National Bank and agreed to pay the loan back with a 6% interest on 31 March 2019.

This transaction results in an increase in assets (Cash) and an increase in liabilities (Loans Payable) by US$30,000. Note that accountants do not recognise the interest on the loan as an expense until the interest expense has been incurred. As of 30 January 2019 (the date of the loan), the interest expense has not been incurred.

Assets	= Liabilities	+ Owners' Equity
+US$30,000	+US$30,000	

The above transactions can be summarised as follows:

Transaction Number	Assets			Liabilities	Owners' Equity	
	Cash +	Accounts Receivables +	Office Supplies +	Office Supplies +	Contributed Capital +	Retained Earnings
1	US$100,000				US$100,000	
2	– US$5,000		US$5,000			
3	US$10,000					US$10,000
4	– US$7,000					–US$7,000
5	US$3,000	US$7,000				US$10,000
6	US$30,000			US$30,000		
Total	**US$131,000**	**US$7,000**	**US$5,000**	**US$30,000**	**US$100,000**	**US$13,000**

The sum of the assets is US$143,000. According to the accounting equation, this equals the sum of liabilities and owners' equity.

3. Double-Entry Accounting System

Fig. 2: Double - Entry Accounting System

Accountants do not maintain their records in the format noted in the above example. Instead they enter all transactions, as they occur, in a book called the general journal. They keep separate records for each of their assets, liabilities and equity items in a book called the general ledger. These records are called accounts.

The process of entering transactions in the general journal follows a system called the double-entry accounting system. Rather than using 'increases' and 'decreases' (as shown in the above

example), the double-entry accounting system uses two key terms, debit (or Dr.) and credit (or Cr.). It is also important to note that when an account is debited by a specific amount, another account must be credited by the same amount, hence the 'double-entry'.

According to the double-entry accounting system, transactions within accounts can be classified as a debit or a credit as follows:

- Asset accounts
  - An increase in an asset account is recorded by debiting the asset account.
  - A decrease in an asset account is recorded by crediting the asset account.
- Liability accounts
  - An increase in a liability account is recorded by crediting the liability account.
  - A decrease in a liability account is recorded by debiting the liability account.
- Owners' equity accounts
  - An increase in an owner's equity account that increases owners' equity (e.g., contributed capital, retained earnings, revenues, gains) is recorded by crediting that account.
  - A decrease in an owner's equity account that increases owners' equity (e.g., contributed capital, retained earnings, revenues, gains) is recorded by debiting that account.
  - An increase in an owner's equity account that decreases owners' equity (e.g., expenses, losses, dividends declared) is recorded by debiting that account.
  - A decrease in an owner's equity account that decreases owners' equity (e.g., expenses, losses, dividends declared) is recorded by crediting that account.

This is summarised in the table below:

	Increases	Decreases
Assets	Debit	Credit
Liabilities	Credit	Debit
Contributed Capital	Credit	Debit
Retained Earnings	Credit	Debit

Dividends Declared	Debit	Credit
Revenues	Credit	Debit
Expenses	Debit	Credit
Gains	Credit	Debit
Losses	Debit	Credit

The same transactions for XYZ Computers are recorded below according to the double-entry system.

Record of Transactions in the Double-Entry System

Transaction 1

This transaction results in an increase in Cash by US$100,000. According to the double-entry system, Cash will be debited by US$100,000. The transaction also results in an increase in Contributed Capital by US$100,000, causing the Contributed Capital account to be credited by US$100,000.

Debit Cash	US$100,000
Credit Contributed Capital	US$100,000

Transaction 2

This transaction results in an increase in Office Supplies by US$5,000. According to the double-entry system, Office Supplies will be debited by US$5,000. The transaction also results in a decrease in Cash, resulting in Cash being credited by US$5,000.

Debit Office Supplies	US$5,000
Credit Cash	US$5,000

Transaction 3

This transaction results in an increase in Cash by US$10,000. According to the double-entry system, Cash will be debited by US$10,000. It also results in an increase in Service Revenues by US$10,000, causing the Service Revenues to be credited by US$10,000.

Debit Cash	US$10,000
Credit Service Revenues	US$10,000

Transaction 4

This transaction results in a decrease in Cash by US$7,000. Cash will be credited by US$7,000 and there will be in an increase in Salaries and Wages Expenses by US$7,000. According to the double-entry system, Salaries and Wages Expense will be debited by US$7,000.

Debit Salaries and Wages Expenses	US$7,000
Credit Cash	US$7,000

Transaction 5

This transaction results in an increase in Service Revenues by US$10,000. According to the double-entry system, Service Revenues will be credited by US$10,000. It also results in an increase in Cash by US$3,000 and an increase in Accounts Receivable by US$7,000 (both are assets). Both Cash and Accounts Receivable will be debited by US$3,000 and US$7,000, respectively.

Debit Cash Debit Accounts Receivable	US$3,000 US$7,000
Credit Service Revenues	US$10,000

Transaction 6

This transaction results in an increase in Cash by US$30,000. According to the double-entry system, cash will be debited by US$30,000. There is also an increase in Loans Payable by US$30,000, resulting in crediting Loans Payable by US$30,000.

Debit Cash	US$30,000
Credit Loans Payable	US$30,000

It is important to note that under the double-entry system, debits equal credits at all times. The dual effect of every transaction, which was discussed under the increase/decrease method, applies equally to the double-entry system. Thus, the double-entry system is a method of recording transactions where every transaction has a dual effect and where the accounting equation holds true at all times.

4. Summary

Here is a quick recap of what we have learnt so far:

- The double-entry framework is an accounting system for recording business transactions.
- The double-entry framework makes use of the dual effect of every business transaction and ensures that the fundamental accounting equation holds true at all times.