Equation Analysis Sheet

Your next step in the study of accounting is to learn how various business transactions affect and change the financial position. To begin, look at Figure 3.1, the simplified balance sheet of Metropolitan Movers of Windsor, Ontario.

	BALANG	TAN MOVERS CE SHEET SER 29, 20–	
Assets		Liabilities	
Cash	\$13 500	Accounts Payable	
Accounts Receivable		 Central Supply 	\$ I 750
– B. Cava	I 300	Bank Loan	18 370
– K. Lincoln	2 500	Total Liabilities	\$20 120
Equipment	11 500		
Trucks	24 500	Owner's Equity	
Total Assets	\$53 300	J. Hofner, Capital Total Liabilities and Equity	33 180 \$53 300

Figure 3.1
The balance sheet of Metropolitan Movers

◀ 3.2

The balance sheet of Metropolitan Movers shows the values of the assets, liabilities, and equity at the end of the business day on September 29th. As business transactions occur on September 30th, there will be changes in the values of assets, liabilities, and equity. The balance sheet is not a suitable type of record on which to record these changes. Therefore, let us arrange the balance sheet items in a different manner. We will transfer the assets, liabilities, and capital from the balance sheet onto what we will call an equation analysis sheet. An equation analysis sheet is a tool for displaying individual transactions and the new financial position resulting from each transaction. At this stage of your accounting studies, the equation analysis sheet is ideal for analyzing and recording changes in financial position. In Chapter 4, you will modify your recording methods.

Figure 3.2 shows the balance sheet items for Metropolitan Movers entered on an equation analysis sheet. Note that this arrangement is in the form of the fundamental accounting equation.

			ASSETS	=		LIABII	LITIES	+	OWNER'S EQUITY
METROPOLITAN MOVERS	Cash	A/R B. Cava	A/R K. Lincoln	Equipment	Trucks	A/P Central Supply	Bank Loan		J. Hofner, Capital
Sep 29 Balances	13 500	1 300	2 500	11 500	24 500	1 750	18 370		33 180

Figure 3.2
Equation analysis sheet for Metropolitan Movers

Accounts Receivable and Accounts Payable may be abbreviated A/R and A/P for now. You will learn the standard format for listing these terms in Chapter 8.

Updating the Equation Analysis Sheet

Let us now examine how transactions affect financial position.

TRANSACTION 1: Metropolitan Movers pays \$1200 cash to reduce the Bank Loan.

After this payment is made, the financial position shown in Figure 3.2 will no longer be correct. Two changes are necessary: Cash must be reduced by \$1200 and the amount owed to the bank must also be reduced by \$1200. These changes are recorded on the equation analysis sheet shown in Figure 3.3 below.

			ASSETS	=		LIABII	ITIES	+	OWNER'S EQUITY
METROPOLITAN MOVERS	Cash	A/R B. Cava	A/R K. Lincoln	Equipment	Trucks	A/P Central Supply	Bank Loan		J. Hofner, Capital
Sep 29 Balances	13 500	1 300	2 500	11 500	24 500	I 750	18 370		33 180
Trans.1	-1900						-1900		
Balance	19300	1300	9200	11500	24500 _j	1750	זרורו	S	33180
			5210	<u> </u>		1	<u>50</u>	10(2
① C	ash	190	× ,	Bank	i Loa	n 1	1900	ı	
3 A	.11 ot	her c	くしつい	nts re	main	ed t	he	50	iml
*3 -	The	۵((σ	untin	م دوله	ation	 \s \	u po	la	inc.

TRANSACTION 2: K. Lincoln, who owes Metropolitan Movers \$2500, pays \$1100 in partial payment of the debt.

Can you figure out the changes to be made on the equation analysis sheet? Try to do this mentally before looking at Figure 3.4 below.

			9 100				52.1	UC	
Balance	1340	5 130	0 1400	11500	34500	nso	רורו	0	08185 (
Trans 2	+1100		-1100						
Transaction I New Balances	-1 200 12 300	1 300	2 500	11 500	24 500	I 750	-1 200 17 170		33 180
Sep 29 Balances	13 500	1 300	2 500	11 500	24 500	I 750	18 370		33 180
METROPOLITAN MOVERS	Cash	A/R B. Cava	A/R K. Lincoln	Equipment	Trucks	A/P Central Supply	Bank Loan		J. Hofner, Capital
			ASSETS	=		LIABIL	ITIES	+	OWNER'S EQUITY

TRANSACTION 3: Equipment costing \$1950 is purchased for cash.

Again, try to make the changes mentally before looking at the entries recorded in Figure 3.5 below.

			52 100	5			52100)
					ر		~	
Balance	11450	1300	1400	13450	24500	1750	סרורו	33180
Trans 3	-1950			+ 1950				
Transaction 2 New Balances	I 100 I3 400	1 300	-I 100 I 400	11 500	24 500	1 750	17 170	33 180
Transaction I New Balances	-I 200 I2 300	1 300	2 500	11 500	24 500	1 750	-1 200 17 170	33 180
METROPOLITAN MOVERS Sep 29 Balances	Cash 13 500	A/R B. Cava	A/R K. Lincoln 2 500	Equipment	Trucks 24 500	A/P Central Supply	Bank Loan 18 370	J. Hofner, Capital 33 180
			ASSETS	=		LIABI	LITIES +	OWNER'S EQUITY

TRANSACTION 4: A pick-up truck is purchased at a cost of \$18 000. Metropolitan Movers pays \$10 000 cash and arranges a loan from its bank to cover the balance of the purchase price.

(Note: This is considered to be a single transaction. The bank will pay \$8000 directly to the truck dealer, who will be paid in full.) Again, try to work out the changes mentally before looking at the equation analysis sheet in Figure 3.6.

		60160					60 100	
Balances	1450	1300	1400	13450	43500	nso	35170	33180
Trans 4	-10000				418000		+ 8000	
Transaction 3 New Balances	-1 950 11 450	1 300	I 400	1 950 13 450	24 500	I 750	17 170	33 180
Transaction 2 New Balances	1 100 13 400	1 300	-I 100 I 400	11 500	24 500	I 750	17 170	33 180
Transaction I New Balances	-I 200 I2 300	1 300	2 500	11 500	24 500	I 750	-1 200 17 170	33 180
Sep 29 Balances	13 500	1 300	2 500	11 500	24 500	1 750	18 370	33 180
METROPOLITAN MOVERS	Cash	A/R B. Cava	A/R K. Lincoln	Equipment	Trucks	A/P Central Supply	Bank Loan	J. Hofner, Capital
			ASSETS			LIAB	ILITIES +	OWNER'S EQUITY

TRANSACTION 5: Metropolitan Movers completes a storage service for B. Cava at a price of \$1500. A bill is sent to Cava to indicate the additional amount that is owed.

Work out the changes necessary and compare them with the equation analysis sheet in Figure 3.7 (on the next page).

			ASSETS	=		LIABI	LITIES +	OWNER'S EQUITY
METROPOLITAN MOVERS	Cash	A/R B. Cava	A/R K. Lincoln	Equipment	Trucks	A/P Central Supply	Bank Loan	J. Hofner, Capital
Sep 29 Balances Transaction I	13 500 -1 200	I 300	2 500	11 500	24 500	I 750	18 370 -1 200	33 180
New Balances	12 300	1 300	2 500	11 500	24 500	I 750	17 170	33 180
Transaction 2 New Balances	1 100 13 400	1 300	-I 100 I 400	11 500	24 500	I 750	17 170	33 180
Transaction 3 New Balances	-1 950 11 450	I 300	I 400	1 950 13 450	24 500	1 750	17 170	33 180
Transaction 4 New Balances	-10 000 I 450	I 300	I 400	13 450	18 000 42 500	1 750	8 000 25 170	33 180
Trans 5		+1500			,			+ 1500
Bulanco	1450	1800	1400	13450	42500	1750	25170	अ680

Understanding changes like the ones in Transaction 5 is vital to becoming a good accountant. Transaction 5 may be analyzed as follows:

- B. Cava owes \$1500 more to Metropolitan Movers. Therefore the figure for Accounts Receivable—B. Cava is increased by \$1500.
- No other asset or liability is affected.
- 3. J. Hofner's capital is increased by \$1500, as explained below.

There are two ways to explain this increase in capital. First, be aware that Metropolitan Movers is in the business of providing a service to earn profit. When the service to B. Cava has been completed, the \$1500 is legally owed and a gain has been made. Metropolitan Movers has earned this money. This gain is recorded by increasing the capital of the owner, J. Hofner.

Second, in Section 2.3 you learned that equity is a residual claim. In other words, the owner gets to claim the "leftovers." Mathematically, the Total Assets figure has increased by \$1500. Since there are no additional liabilities, the owner claims this extra \$1500, keeping the accounting equation in balance.

* Revenues represent on increase to owner's equity

TRANSACTION 6: J. Hofner, the owner, withdraws \$500 for personal use.

Work out the necessary changes and then check your work against the equation analysis sheet in Figure 3.8 below.

Balance	950	260 0	1400	12450	42501	1754) <u>25</u> 1	70	24184
Trans6	- 500				'	}			-500
Transaction 5 New Balances	I 450	1 500 2 800	I 400	13 450	42 500	I 750	25 170		I 500 34 680
Transaction 4 New Balances	-10 000 1 450	1 300	1 400	13 450	18 000 42 500	I 750	8 000 25 170		33 180
Transaction 3 New Balances	-1 950 11 450	1 300	I 400	I 950 I3 450	24 500	I 750	17 170		33 180
Transaction 2 New Balances	1 100 13 400	I 300	-I 100 I 400	11 500	24 500	I 750	17 170		33 180
Sep 29 Balances Transaction I New Balances	13 500 -1 200 12 300	1 300	2 500 2 500	11 500	24 500 24 500	I 750 I 750	18 370 -1 200 17 170		33 180 33 180
METROPOLITAN MOVERS	Cash	A/R B. Cava	A/R K. Lincoln	Equipment	Trucks	A/P Central Supply	Bank Loan		J. Hofner, Capital
			ASSETS	=		LIABI	LITIES	+	OWNER'S EQUITY

In analyzing Transaction 6, observe that

- Cash is decreased by \$500, the amount withdrawn.
- No other asset or liability is affected.
- 3. Capital is decreased by \$500. Assets have been withdrawn from the business. There is less to claim. Obviously, the creditors' claims are unaffected by the drop in assets. The owner must assume a smaller claim, leaving the accounting equation in balance.

Drawings represent a decrease in Owner's equity

TRANSACTION 7: One of the trucks requires an engine adjustment costing \$375. The repair is paid for in cash when the truck is picked up.

Work out the necessary changes and then check your work against the equation analysis sheet in Figure 3.9 below.

			ASSI	ETS	=	LIABIL	ITIES	+	OWNER'S EQUITY
METROPOLITAN MOVERS	Cash	A/R B. Cava	A/R K. Lincoln	Equipment	Trucks	A/P Central Supply	Bank Loan		J. Hofner, Capital
Sep 29 Balances Transaction I	13 500 -1 200	I 300	2 500	11 500	24 500	1 750	18 370 -1 200		33 180
New Balances	12 300	1 300	2 500	11 500	24 500	1 750	17 170		33 180
Transaction 2 New Balances	1 100 13 400	I 300	-I 100 I 400	11 500	24 500	I 750	17 170		33 180
Transaction 3 New Balances	−I 950 II 450	I 300	I 400	1 950 13 450	24 500	I 750	17 170		33 180
Transaction 4 New Balances	-10 000 1 450	1 300	I 400	13 450	18 000 42 500	1 750	8 000 25 170		33 180
Transaction 5 New Balances	I 450	1 500 2 800	I 400	13 450	42 500	1 750	25 170		1 500 34 680
Transaction 6 New Balances	-500 950	2 800	I 400	13 450	42 500	1 750	25 170		-500 34 180
Trans	.375								-36
Balance	515	380	0 1400	13450	4250	1750	35170	•	3 380 5

In analyzing Transaction 7, observe that

- 1. Cash is decreased by \$375, the amount paid for the repair.
- 2. No other asset or liability is affected. The value of the truck on the equation analysis sheet is not increased because the engine received a tune-up.
- 3. Capital is decreased by \$375. Cash paid has decreased the amount of Total Assets. Since there is a smaller amount of assets to claim, and the <u>creditors</u>' claims are unaffected, the <u>owner's claim</u> must decrease in response to the reduction of assets.
- 4. After the changes are recorded, the accounting equation is still in balance.

* An expense represents a reduction to Owner's equity.

Updating the Balance Sheet

The figures for an updated balance sheet for Metropolitan Movers are taken from the last line of the equation analysis sheet. Figure 3.10 below shows the new balance sheet.

	BALANC	TAN MOVERS CE SHEET ER 30, 20–	
Assets		Liabilities	
Cash	\$ 575	Accounts Payable	
Accounts Receivable		 Central Supply 	\$ I 750
- B. Cava	2 800	Bank Loan	25 170
 K. Lincoln 	I 400	Total Liabilities	\$26 920
Equipment	13 450		
Trucks	42 500	Owner's Equity	
Total Assets	\$60 725	J. Hofner, Capital Total Liabilities and Equity	33 805 \$60 725

Summary of Steps in Analyzing a Transaction

The following steps will help you to analyze any transaction:

Step I Identify all asset and liability items that must be changed and make all necessary changes.

When thinking about the transaction, try to be logical and use common sense.

- · Carefully analyze the information given for any transaction.
- · Classify each item affected as an asset or a liability.
- · Decide whether each item affected is to be increased or decreased.
- Step 2 See if the owner's equity has changed.

Remember the accounting equation. For example, if assets decrease and there is a corresponding liability decrease, the owner's equity will not change. However, if assets decrease and liabilities are unchanged, the equation must be balanced by a decrease in owner's equity. Eventually, you will come to recognize whether or not owner's equity has changed. Generally, if a business is better off after a transaction, owner's equity has increased. If a business is worse off after a transaction, owner's equity has decreased.

- **Step 3** Make certain that at least two of the individual items have changed. It is possible for several items—assets, liabilities, or owner's equity—to change, but there can never be only one change.
- Step 4 Make sure that the equation is still in balance.

 The fundamental accounting equation must be respected: assets must equal liabilities plus owner's equity.

Homework

Section 3.2

Review Onestrons 1-10

Exercises 1-3

SECTION 3.2 REVIEW QUESTIONS (page 69)

- 1. The equation analysis sheet is necessary because it helps you analyze and record changes in a company's financial position.
- Assets, liabilities, and capital are transferred from the balance sheet to the equation analysis sheet.
- 3. After each transaction is recorded on the equation analysis sheet, new column totals are calculated and these totals are balanced according to the fundamental accounting equation (A = L + OE). If the totals balance, then each transaction was balanced.
- 4. A transaction does not always change both sides of the accounting equation. For example, a transaction might increase one asset and decrease another by the same amount. In this case, the right side of the accounting equation (liabilities and equity) would be totally unchanged.
- 5. If the repair is paid for at a later date, then it will only affect the right side of the accounting equation. Liabilities increase by \$375 and owner's equity decreases by \$375.
- 6. The first step is to record the changes in any of the assets, liabilities, or both. The second step is to determine if the equity has changed. The third step is to make sure that at least two of the individual items have changed. The fourth step is to make sure that the equation is still in balance.
- 7. A good clue as to whether capital had changed is whether the business is better off or worse off as a result of the transaction.
- 8. If assets increase by \$10 000 with no corresponding change to liabilities, then capital must increase by \$10 000.
- In addition to their memory, good accountants rely on common sense, clear thinking, and a thorough understanding of accounting theory.
- Accounting must be done accurately to ensure financial records are correct and reliable.

		ASSETS			=	LIABILITI	ES +	OWNER'S EQUITY
SHEILA'S INTERIOR DECORATING	Cash	A/R E. Kerluck	Supplies	Office Furniture	Automobile	A/P Home Supply	A/P Pine Motors	S. Kostiuk Capital
Opening Balance	2 050	150	600	1 200		1 000		3 000
Transaction 1			175			175		
New Balances	2 050	150	775	1 200		1 175	0	3 000
Transaction 2	-450			450				
New Balances	1 600	150	775	1 650		1 175	0	3 000
Transaction 3	150	-150						
New Balances	1 750	0	775	1 650		1 175	0	3 000
Transaction 4	300							300
New Balances	2 050		775	1 650		1 175		3 300
Transaction 5	-500				6 500		6 000	
New Balances	1 550		775	1 650	6 500	1 175	6 000	3 300
Transaction 6	-700					-700		
New Balances	850		775	1 650	6 500	475	6 000	3 300
Transaction 7	-200							-200
New Balances	650		775	1 650	6 500	475	6 000	3 100

A., B.

		ASSETS			=	LIABILITII	ES +	owner's equity
TRIANGLE REAL ESTATE	Cash	A/R J. Singh	A/R N. Swartz	Supplies	Office Furniture	A/P Acme Supply	A/P Office Discounts	J. Morse Capital
Opening Balance	1 216	1 500	800	4 175	11 969	1 750	875	17 035
Transaction 1	500		-500					
New Balances	1 716	1 500	300	4 175	11 969	1 750	875	17 035
Transaction 2	-300					-300		
New Balances	1 416	1 500	300	4 175	11 969	1 450	875	17 035
Transaction 3				495			495	
New Balances	1 416	1 500	300	4 670	11 969	1 450	1 370	17 035
Transaction 4	4 700							4 700
New Balances	6 116	1 500	300	4 670	11 969	1 450	1 370	21 735
Transaction 5	-950				950			
New Balances	5 166	1 500	300	4 670	12 919	1 450	1 370	21 735
Transaction 6	-380							-380
New Balances	4 786	1 500	300	4 670	12 919	1 450	1 370	21 355
Transaction 7	-290							-290
New Balances	4 496	1 500	300	4 670	12 919	1 450	1 370	21 065
Transaction 8	1 500	-1 500						
New Balances	5 996	0	300	4 670	12 919	1 450	1 370	21 065

c.

TRIANGLE REAL ESTATE
BALANCE SHEET
OCTOBER 1, 20-

Assets						Liabilities						
Cash	\$ 5	9	9	6	-	A/P—Acme Supply	\$	1	4	5	0	-
A/R—N. Swartz		3	0	0	-	A/P—Office Discounts		1	3	7	0	-
Supplies	4	6	7	0	_	Total Liabilities	\$	2	8	2	0	-
Office Furniture	12	9	1	9	-							
						Owner's Equity						
						J. Morse, Capital	2	21	0	6	5	_
Total Assets	\$23	8	8	5	_	Total Liabilities and Equity	\$2	23	8	8	5	-

A., B.

		ASSETS					=	LIABILITIES	+	OWNER'S EQUITY
ALLIANCE APPLIANCE SERVICES	Cash	A/R N. Chang	A/R P. O'Neill	Equipment	Truck	Land	Building	Bank Loan	Mortgage Payable	W. Dalli Capital
Opening Balance	6 540	1 100	529	8 316	19 750	140 000	180 000	15 000	192 700	148 535
Transaction 1	-2 500									-2 500
Transaction 2	529		-529							
Transaction 3		390								390
Transaction 4	4 000				-19 750					-15 750
Transaction 5	-900								-900	
Transaction 6	-700									-700
Transaction 7	-5 000				40 000			35 000		
Total	1 969	1 490	0	8 316	40 000	140 000	180 000	50 000	191 800	129 975

C.

ALLIANCE APPLIANCE SERVICE BALANCE SHEET OCTOBER 21, 20-

Assets						Liabilities					
Cash	\$ 1	9	6	9	_	Bank Loan	\$ 50	0	0	0	_
A/R—N. Chang	1	4	9	0	-	Mortgage Payable	191	8	0	0	_
Equipment	8	3	1	6	_	Total Liabilities	\$242	8	0	0	_
Truck	40	0	0	0	_						
Land	140	0	0	0	-	Owner's Equity					
Building	180	0	0	0	_	W. Dalli, Capital		9	7	5	_
Total Assets	\$371	7	7	5	-	Total Liabilities and Equity	\$371	7	7	5	_