Chapter 6 Selected Answers

Problem 6.1:

a) A loan from your credit union:

Your T-account	
Assets	Liabilities and Net Worth
+$12,000 (car)	+$12,000 (loan debt to credit union)

c) Withdrawal $2,000 from your money-market mutual fund and $10,000 on credit card account:

Your T-account	
Assets	Liabilities and Net Worth
+$12,000 (car) –$2,000 (my mutual fund account balance)	+$10,000 (credit card account balance)

Problem 6.3:
The effect on *your* T-account from your purchase of a car for $12,000 by $12,000 loan from your father's checking account:

Scenario #1 – you and your father are independent units:

Your T-account	
Assets	Liabilities and Net Worth
+$12,000 (car)	+$12,000 (father's loan)

Your Father's T-account	
Assets	Liabilities and Net Worth
+$12,000 (loan to you) –$12,000 (his checking account)	

Scenario #2 – you and your father are a single family unit:

Your family T-account	
Assets	Liabilities and Net Worth
+$12,000 (car) –$12,000 (family's checking account balance)	

Problem 6.6:

(a) The principal instrument is debt. Government source increases +500 (row 6, column 6 = 6/6); Rest of World use rises +500 (6/10). Sources and uses must balance, so the Government must distribute its additional funds over various uses and the Rest of the World must fund its source through various uses, neither of which are pinned down in the information in the problem. As well as these primary changes, various summary elements in the table must change. The ones that are pinned down are: +500 increases in 3/9, 4/6, 3/11, and 4/12.

Problem 6.10:

Table 6.10.1
Real Interest Rate Based on Exact and Approximate Formulae

	Data		Real Rate of Interest		
	Market interest rate (percent)	**Inflation Rate (percent)**	**Exact formula**	**Approximate formula**	**Approximation Error (approximate – exact)**
(a)	7	2	4.90	5.00	0.10
(b)	35	29	4.65	6.00	1.35
(c)	4	2	1.96	2.00	0.04
(d)	24	2	21.57	22.00	0.43

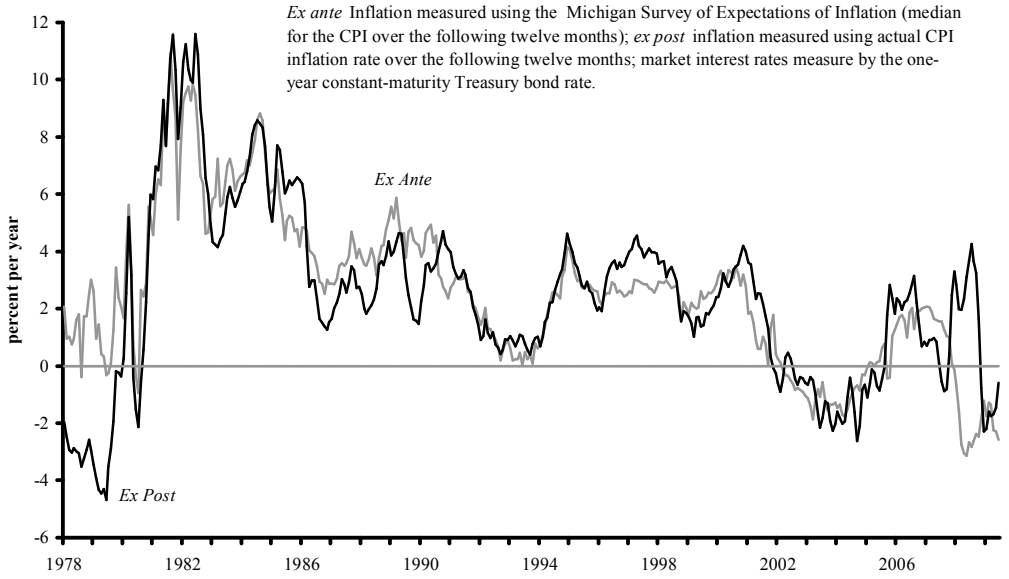
Table 10.10 shows that the approximate formula provides a good approximation when the market rate and the inflation rate are both small (see first and third lines), but the error can be large when either of the two rates is large (see second and fourth lines).

Problem 6.13:

The *ex post* real interest rate is calculated as: $rr_t^{ex\ post} \approx r_t - \hat{p}_{t+1}$

where r_t is the nominal interest rate measured by yield on a 1-year constant-maturity Treasury bond and $\hat{p}_{t+1} = \frac{p_{t+1}}{p_t}$ – in other words the inflation rate as it, in fact, turns out to be over the year following the purchase of the Treasury bill. The *ex ante* real interest rate is calculated as: $rr_t^{ex\ ante} \approx r_t - \hat{p}_{t+1}^e$, where $\hat{p}_{t+1}^e$ is the expected inflation rate from the University of Michigan survey. The following is the plot of the *ex post* and *ex ante* real interest rates since 1978:01.

Figure 6.13.1
***Ex Ante* and *Ex Post* Real Rates of Interest**



The figure shows that *ex ante* real rates of interest track *ex post* very well in most cases, which shows that people's expectations of inflation are reasonably good. Both *ex ante* and *ex post* rates are generally positive, but can become negative – as in 2002-2005 and again in 2007. The most interesting parts of the graph are:

(1) The period 1978-1981 in which *ex post rates* were mainly negative – and sometimes largely negative – even though *ex ante* rates were positive. In other words, inflation caught people by surprise.

(2) The period in 2007 when *ex post* rates were positive, even though *ex ante* rates were negative. In other words, low inflation rates caught people by surprise.

In both cases, *ex ante* and *ex post* rates ultimately came back into close agreement. The differences between these rates can be important because lenders and borrowers based their decisions on *ex ante* rates. When these are negative, it promotes borrowing but inhibits lending. A period, when *ex post* real rates turned out to be negative would be a good time to borrow; but if the market fails to foresee *ex ante* that rates will be negative, then the negative rates cannot affect market behavior.

Problem 6.16:

b) $907.02

Problem 6.18:

a) $9,902.43

c) $9,505.22

Problem 6.20:

(a) $98.11

(b) $100.00

(c) $100.13

When the coupon rate is smaller than the yield on similar assets ($(Cpn/FV) < r$), the bond sells at a *discount* over the face value ($p_B < FV$); when the coupon rate is the same as the yield on similar assets ($(Cpn/FV) = r$), the bond sells at *par* ($p_B = FV$); when the coupon rate is greater than the yield on similar assets ($(Cpn/FV) > r$), the bond sells at a *premium* over the face value ($p_B > FV$).

Problem 6.22:

(a) 4%

(b) 5%

(c) 6%

Problem 6.25:

(a) $83.33 per share.

(c) $41.67 per share.