

# Unit 10

BANKS, MONEY, AND THE CREDIT MARKET

Figure 10.1. Wealth, gross income, depreciation, and consumption: The bathtub analogy.

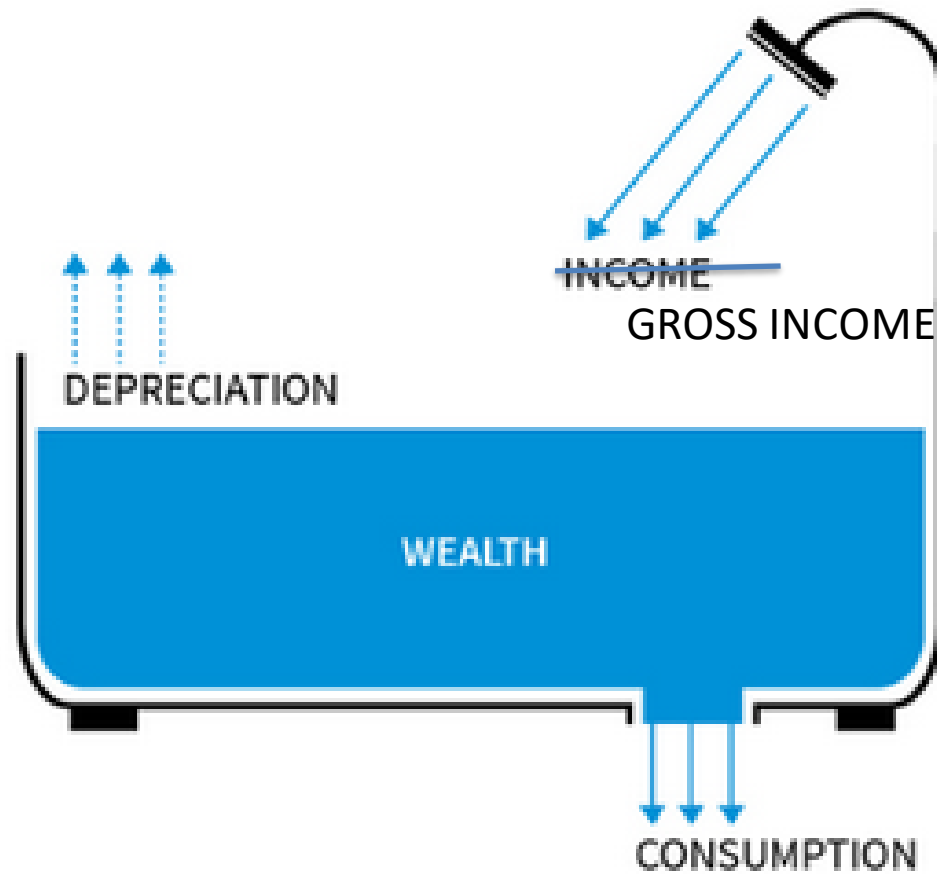


Figure 10.2. Borrowing, the interest rate, and the feasible set.

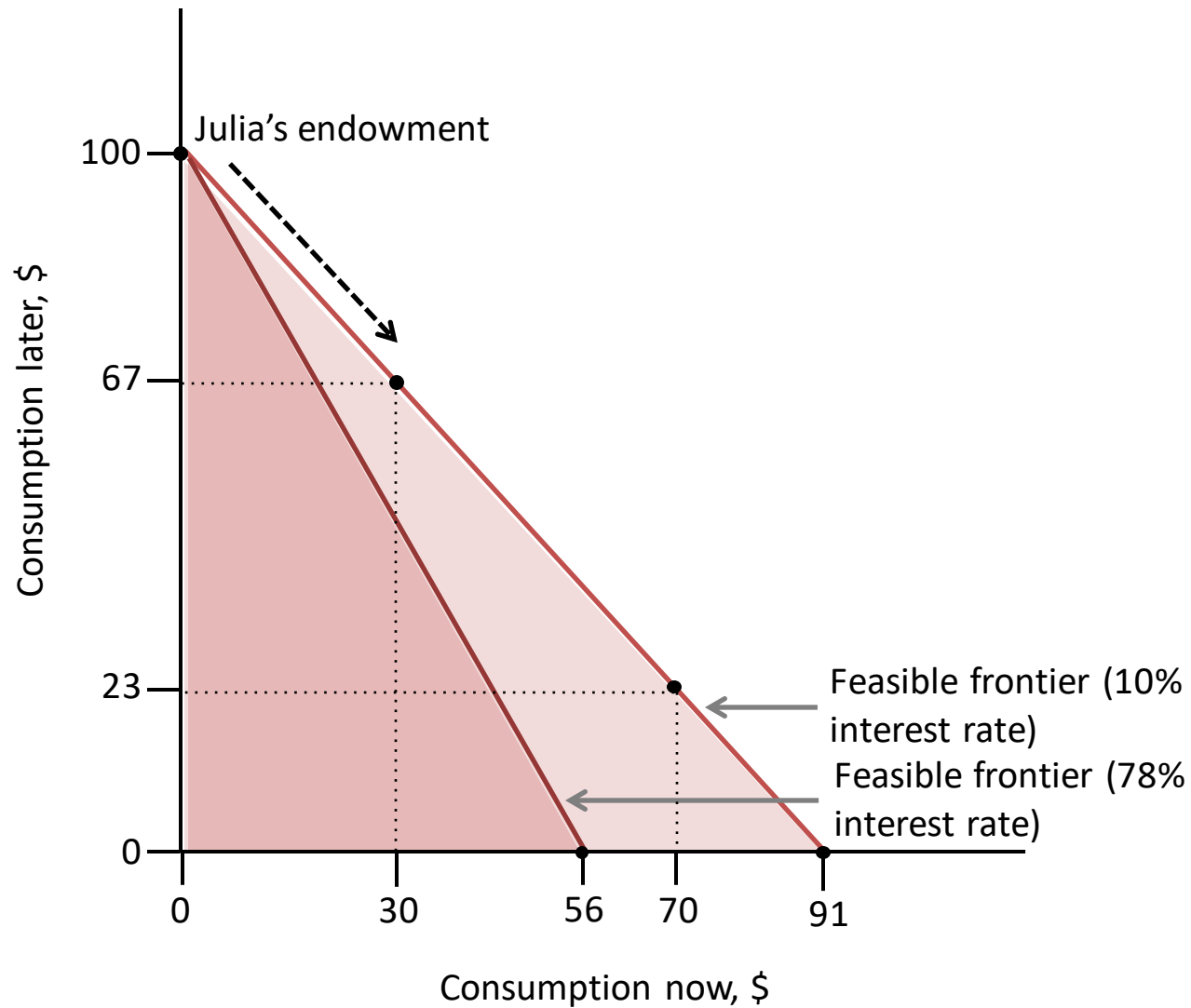


Figure 10.3a. Consumption smoothing: Diminishing marginal returns to consumption.

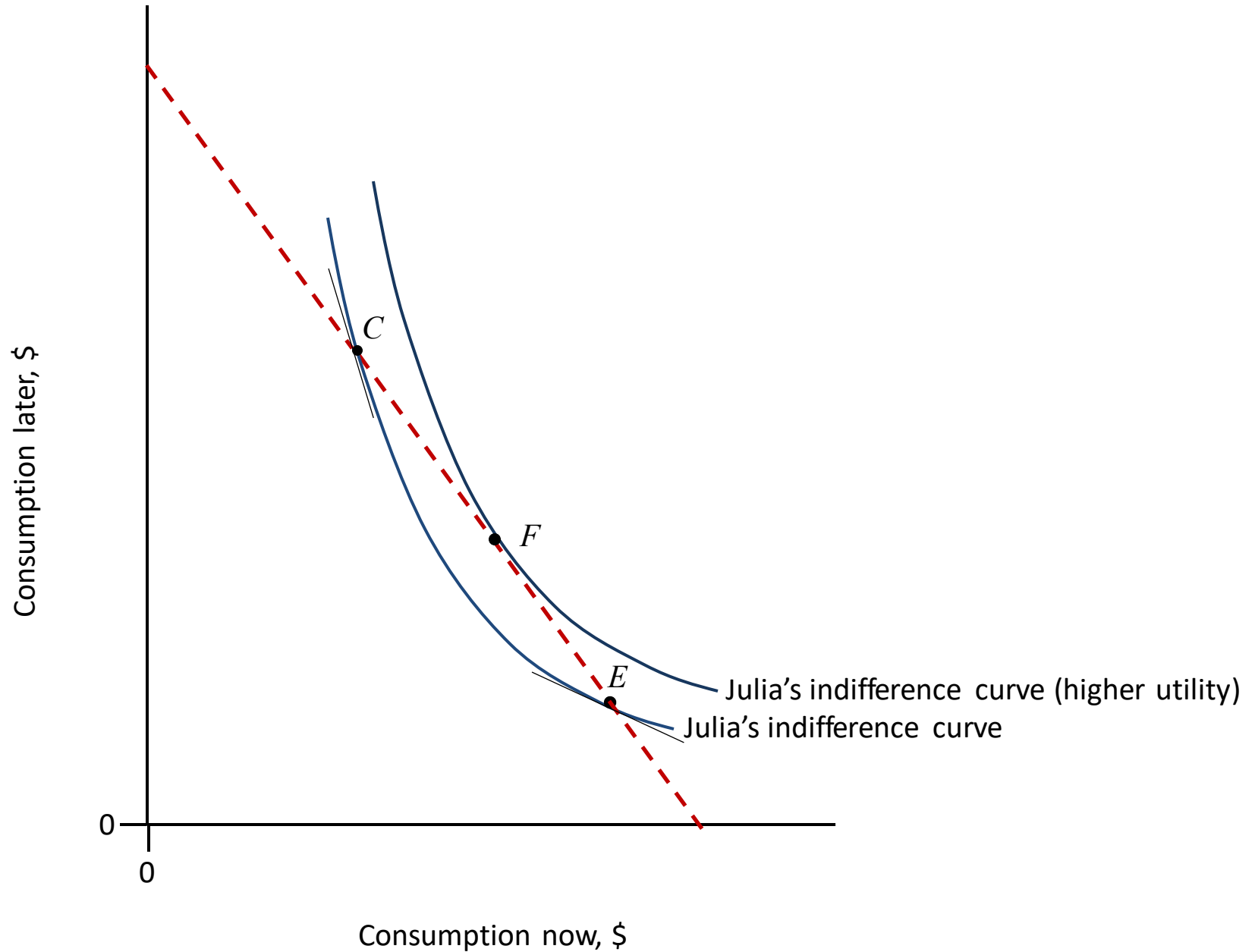


Figure 10.3b. Pure impatience.

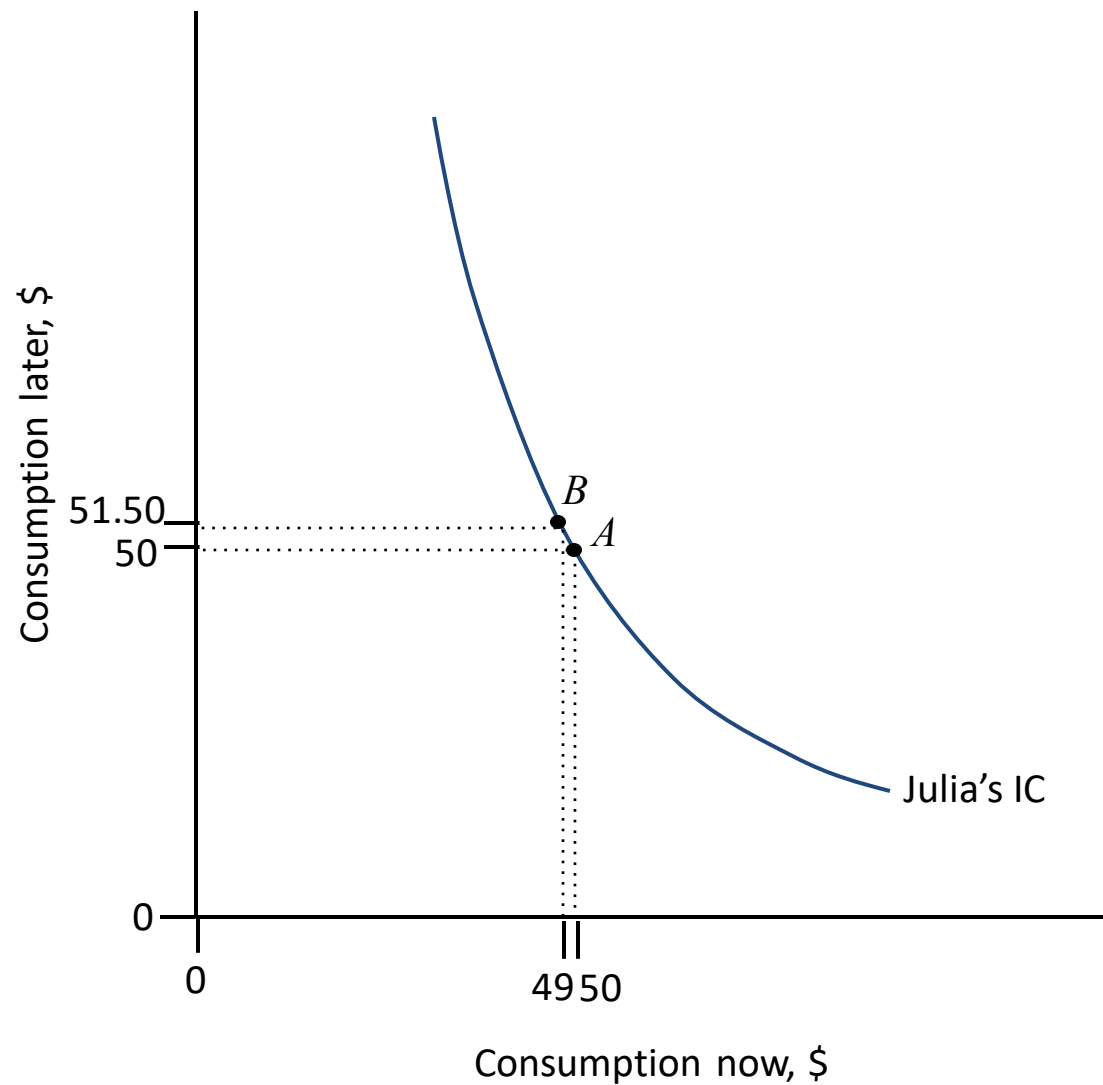


Figure 10.4. Moving consumption over time by borrowing.

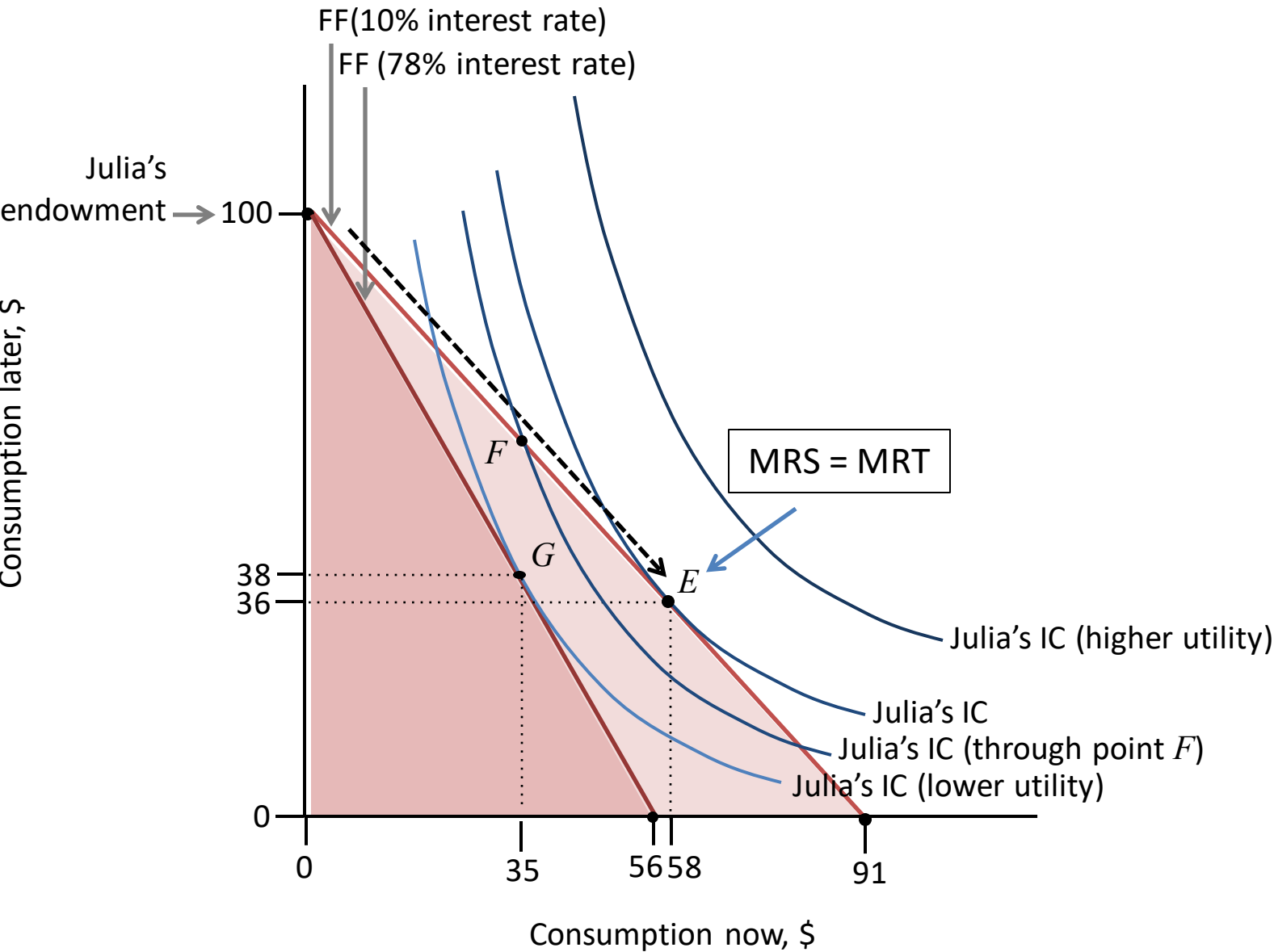


Figure 10.5. Reservation indifference curves and endowments.

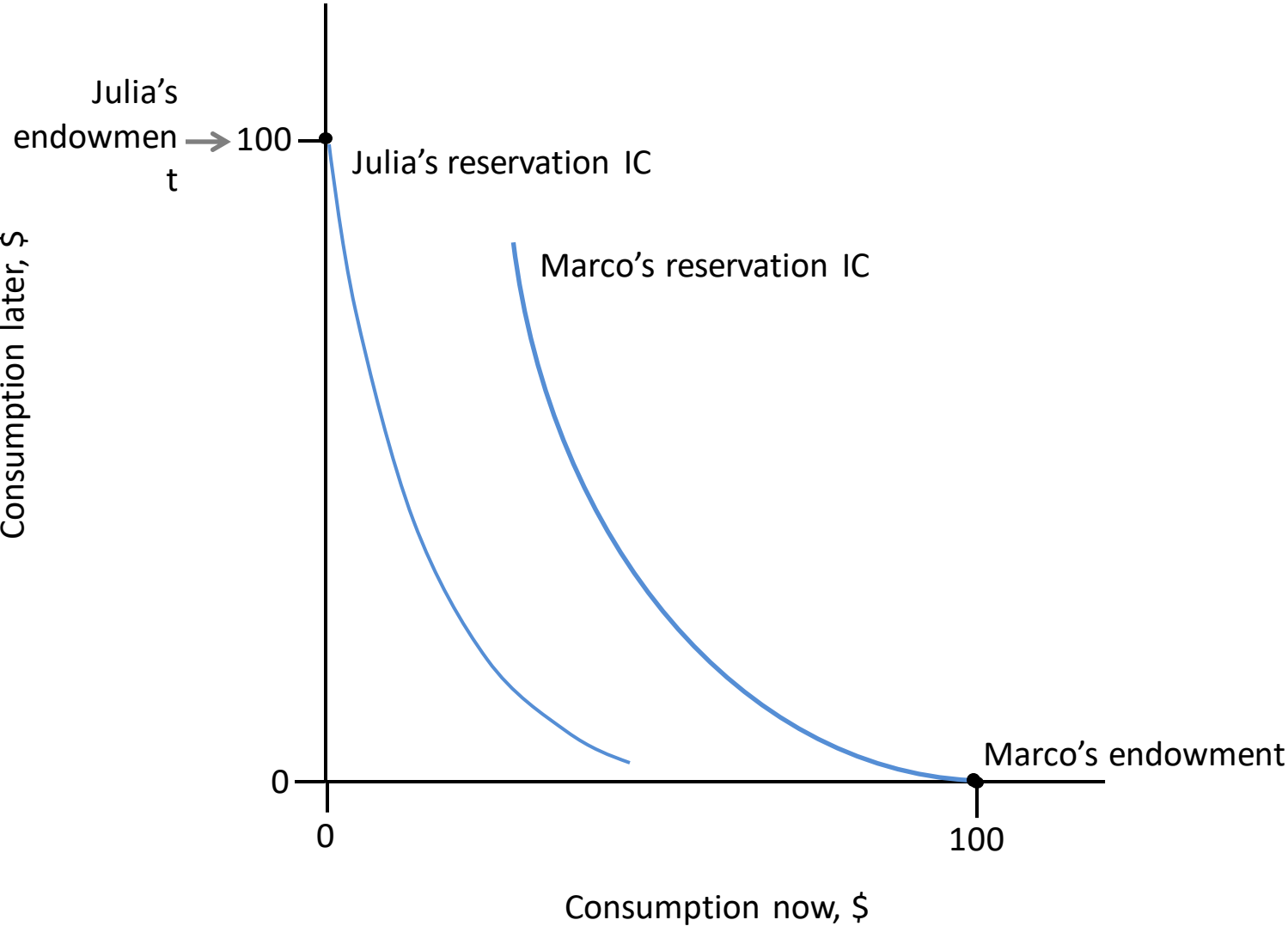


Figure 10.6. Smoothing consumption by storing and lending.

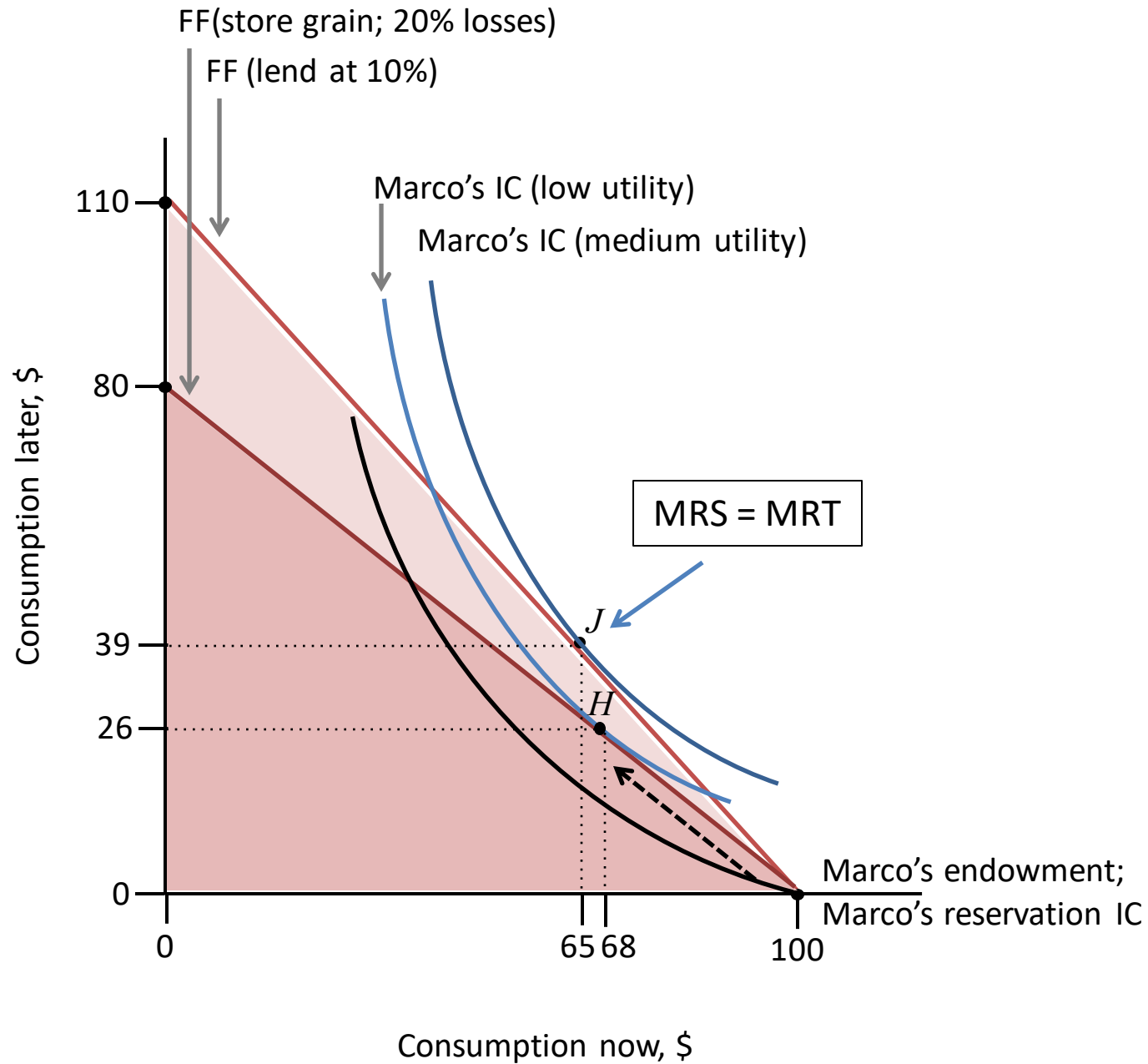




Figure 10.7. Investing in a high-return project.

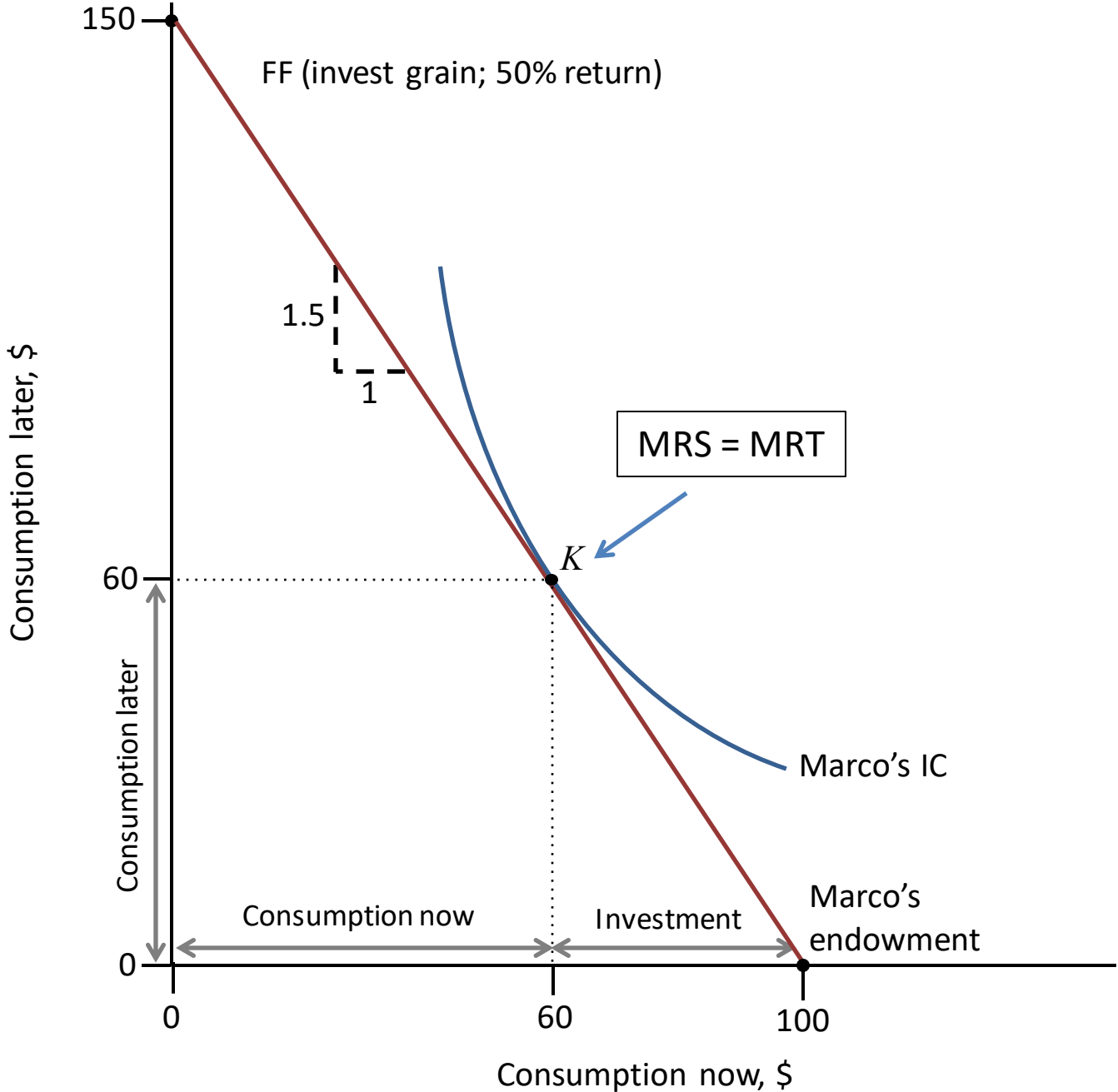


Figure 10.8. Borrowing to invest in a high-return project.

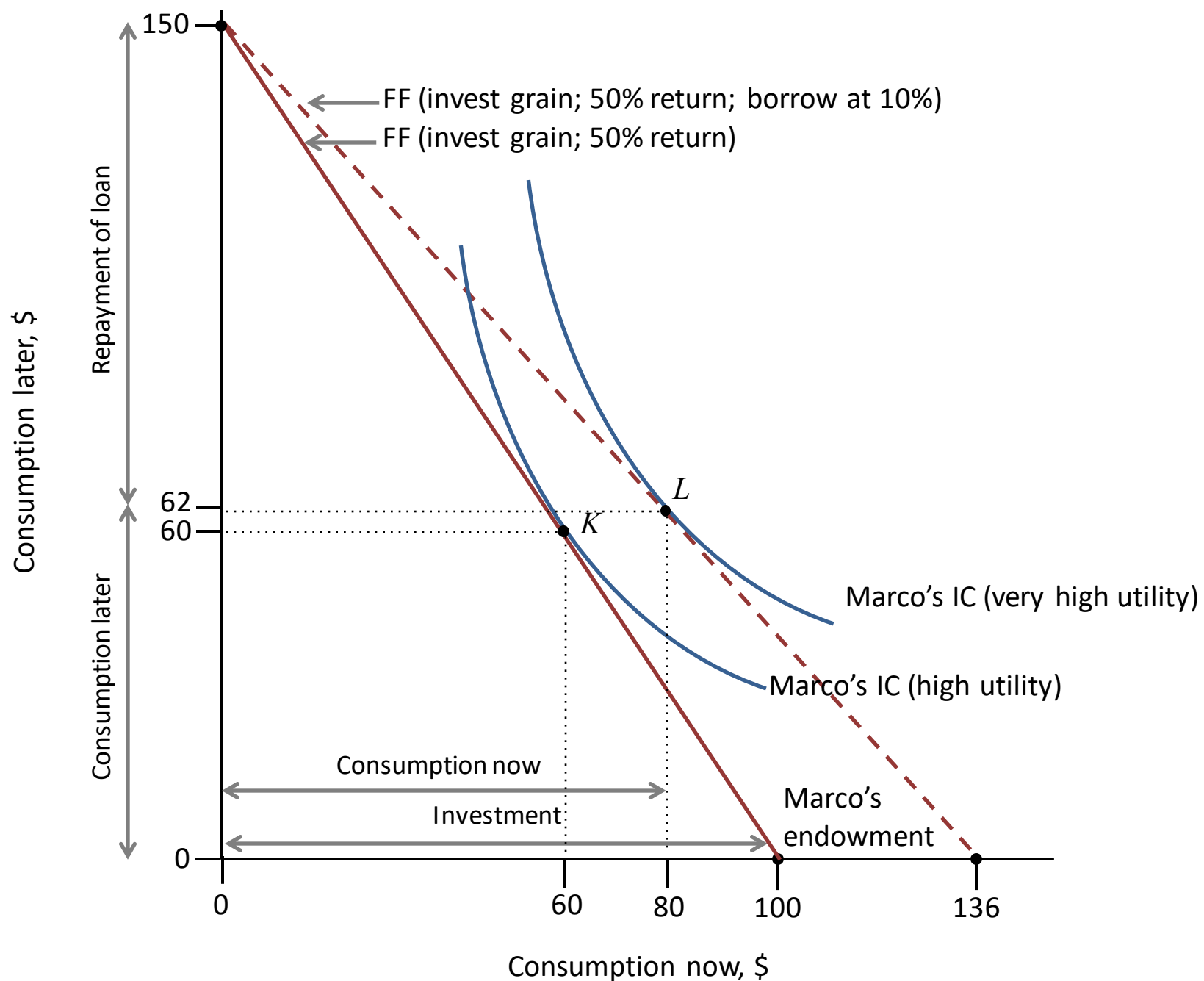


Figure 10.9. Storage, lending, investment, and borrowing provide Marco with many feasible sets.

Plan (point in Figure 10)	Rate of return or interest	Consumption now, Consumption later	Investment	Ranking by utility (or combined consumption)
Storage (H)	-20% (loss)	\$68, \$26	n/a	Worst (\$94)
Lending only (J)	10%	\$65, \$39	n/a	3 <sup>rd</sup> (\$104)
Investment only (K)	50%	\$60, \$60	\$40	2 <sup>nd</sup> (\$120)
Investment and borrowing (L)	50% (investment), -10% (lending)	\$80, \$62	\$100	Best (\$142)

Figure 10.10. Options for the individual (Marco) who starts with assets.

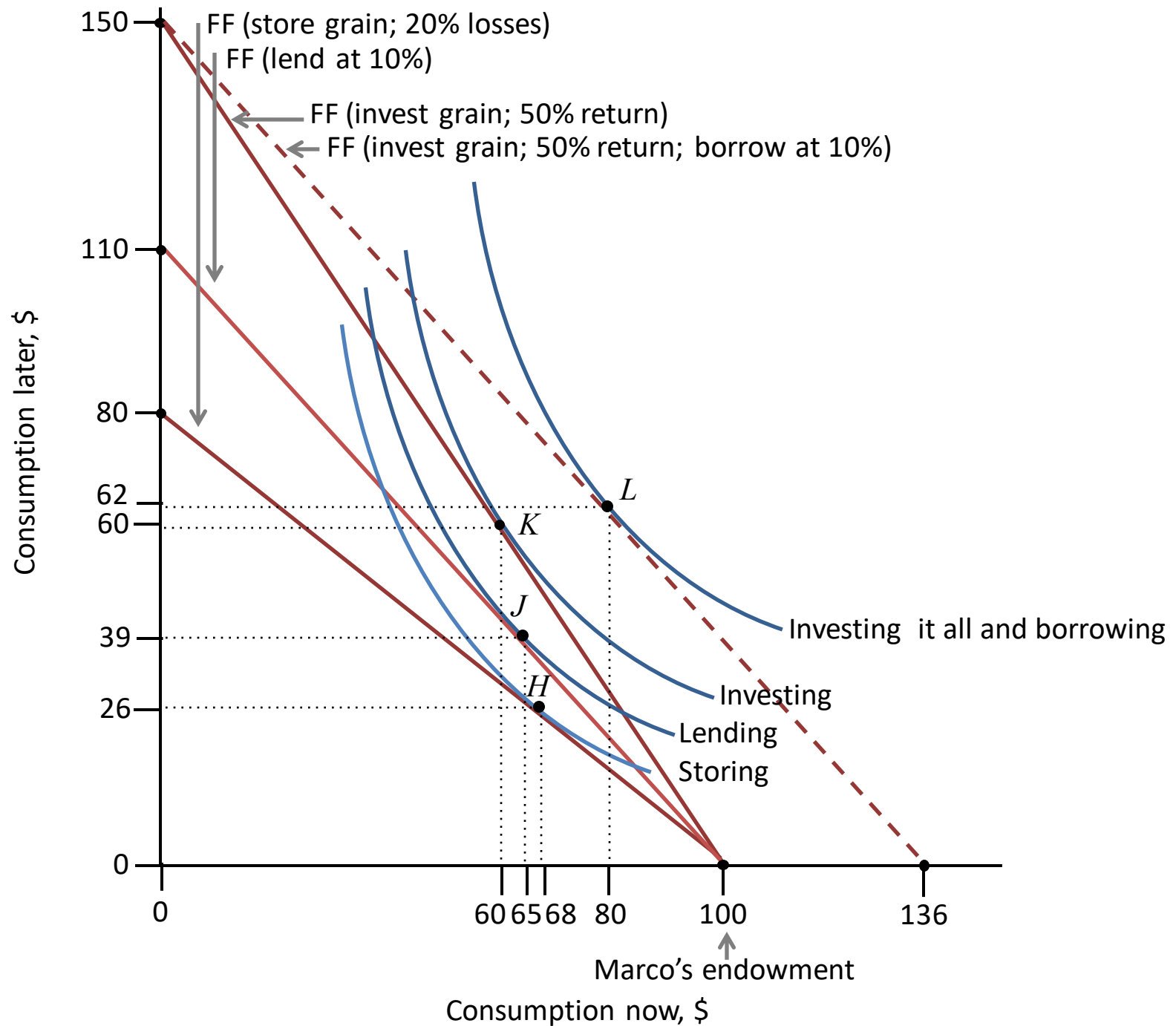


Figure 10.11. A balance sheet.

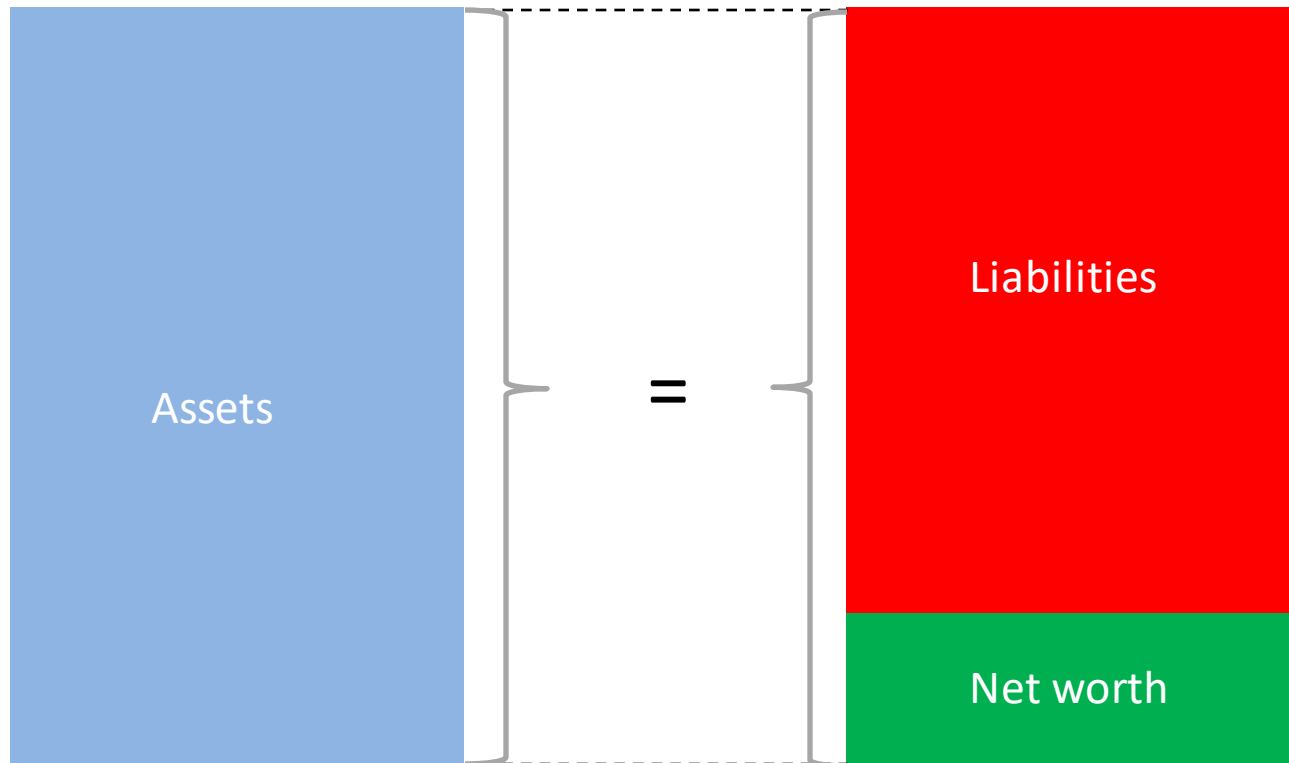


Figure 10.12 Julia's balance sheets.

Now – before consuming

Julia's assets		Julia's liabilities	
Cash	\$58	Loan	\$58

$$\text{Net worth} = \$58 - \$58 = 0$$

Now – after consuming

Julia's assets		Julia's liabilities	
Cash	0	Loan	\$58

$$\text{Net worth} = - \$58$$

Later – before consuming

Julia's assets		Julia's liabilities	
Cash	\$100	Loan	\$64

$$\text{Net worth} = \$100 - \$64 = \$36$$

Later – after consuming

Julia's assets		Julia's liabilities	
Cash	\$64	Loan	\$64

$$\text{Net worth} = 0$$

Figure 10.13a. Marco deposits \$100 in Abacus Bank.

*Marco deposits \$100 in Abacus Bank*

Abacus Bank's assets	Abacus Bank's liabilities
\$100 base money	\$100 payable on demand to Marco

Figure 10.13b. Marco pays \$20 to Gino.

*Marco pays \$20 to Gino*

Abacus Bank's assets	Abacus Bank's liabilities
\$80 base money	\$80 payable on demand to Marco

Bonus Bank's assets	Bonus Bank's liabilities
\$20 base money	\$20 payable on demand to Gino



Figure 10.13c. Bonus Bank gives Gino a loan of \$100.

*Bonus Bank gives Gino a loan of \$100*

Bonus Bank's assets	Bonus Bank's liabilities
\$20 base money \$100 bank loan <b>Total: \$120</b>	\$120 payable on demand to Gino

Figure 10.13d. Gino pays Marco \$10.

*Gino pays Marco \$10*

Abacus Bank's assets	Abacus Bank's liabilities
\$90 base money	\$90 payable on demand to Marco

Bonus Bank's assets	Bonus Bank's liabilities
\$10 base money \$100 bank loan <b>Total: \$110</b>	\$110 payable on demand to Gino

Figure 10.13e. The total money in the banking system has grown.

Assets of Abacus Bank and Bonus Bank	Liabilities of Abacus Bank and Bonus Bank
\$100 base money \$100 bank loan <b>Total: \$200</b>	\$200 payable on demand

Figure 10.13f. Bonus Bank does not have enough base money to pay \$50 to Abacus Bank.

Bonus Bank's assets	Bonus Bank's liabilities
\$20 base money \$100 bank loan <b>Total: \$120</b>	\$120 payable on demand to Gino

Figure 10.14. Banks, the central bank, borrowers, and savers.

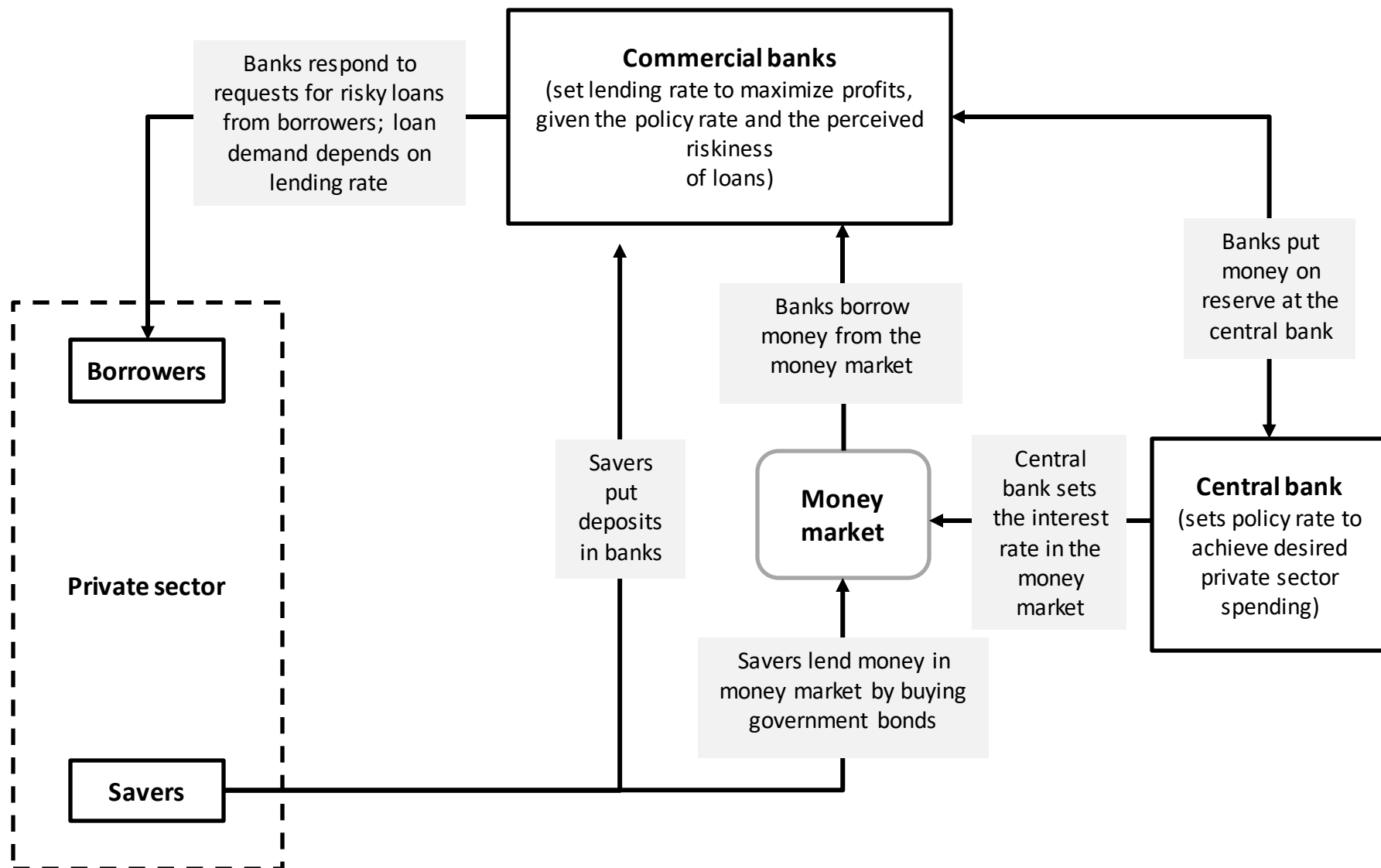


Figure 10.15. A simplified bank balance sheet.

Assets (owned by the bank or owed to it)		% of balance sheet	Liabilities (what the bank owes households, firms and other banks)		% of balance sheet
1. Cash and reserve balances at the central bank	Owned by the bank: immediately accessible funds	2	1. Deposits	Owned by households and firms	50
2. Financial assets, some of which (government bonds) may be used as collateral for borrowing	Owned by the bank	30	2. Secured borrowing (collateral provided)	Includes borrowing from other banks via the money market	30
3. Loans to other banks	Via the money market	11	3. Unsecured borrowing (no collateral provided)		16
4. Loans to households and firms (e.g. mortgages)		55			
5. Fixed assets such as buildings and equipment	Owned by the bank	2			
Total assets		100	Total liabilities		96
			4. Net worth = Total assets – total liabilities = equity		4

Figure 10.16. Barclays' balance sheet in 2006 (£m).

Assets		Liabilities	
1. Cash and reserve balances at the central bank	7,345	1. Deposits	336,316
2. Wholesale reverse repo lending	174,090	2. Wholesale repo borrowing secured with collateral	136,956
3. Loans (e.g. mortgages)	313,226	3. Unsecured borrowing	111,137
4. Fixed assets (e.g. buildings, equipment)	2,492	4. <i>Trading portfolio liabilities</i>	71,874
5. <i>Trading portfolio assets</i>	177,867	5. <i>Derivative financial instruments</i>	140,697
6. <i>Derivative financial instruments</i>	138,353	6. <i>Other liabilities</i>	172,417
7. <i>Other assets</i>	183,414		
Total assets	996,787	Total liabilities	969,397
		Net worth	
		Equity	27,390
Memorandum item: Leverage (Total assets/Net worth)		996,787/27,390 = 36.4	

Figure 10.17. Honda Motor Company's balance sheet in 2013 (¥m).

Assets		Liabilities	
1. Current Assets	5,323,053	1. Current liabilities	4,096,685
2. Finance subsidiaries-receivables, net	2,788,135	2. Long-term debt	2,710,845
3. Investments	668,790	3. Other liabilities	1,630,085
4. Property on operating leases	1,843,132		
5. Property, plant and equipment	2,399,530		
6. Other assets	612,717		
Total assets	13,635,357	Total liabilities	8,437,615
		Net worth	
		Equity	5,197,742
Memorandum item: Leverage as defined for banks: (Total assets/Net worth)		$13,635,357 / 5,197,742 = 2.62$	
Memorandum item: Leverage as normally defined for non-banks (Total Liabilities / Total assets)		$8,437,615 / 13,635,357 = 61.9\%$	



Figure 10.18. Interest rates and consumption spending.

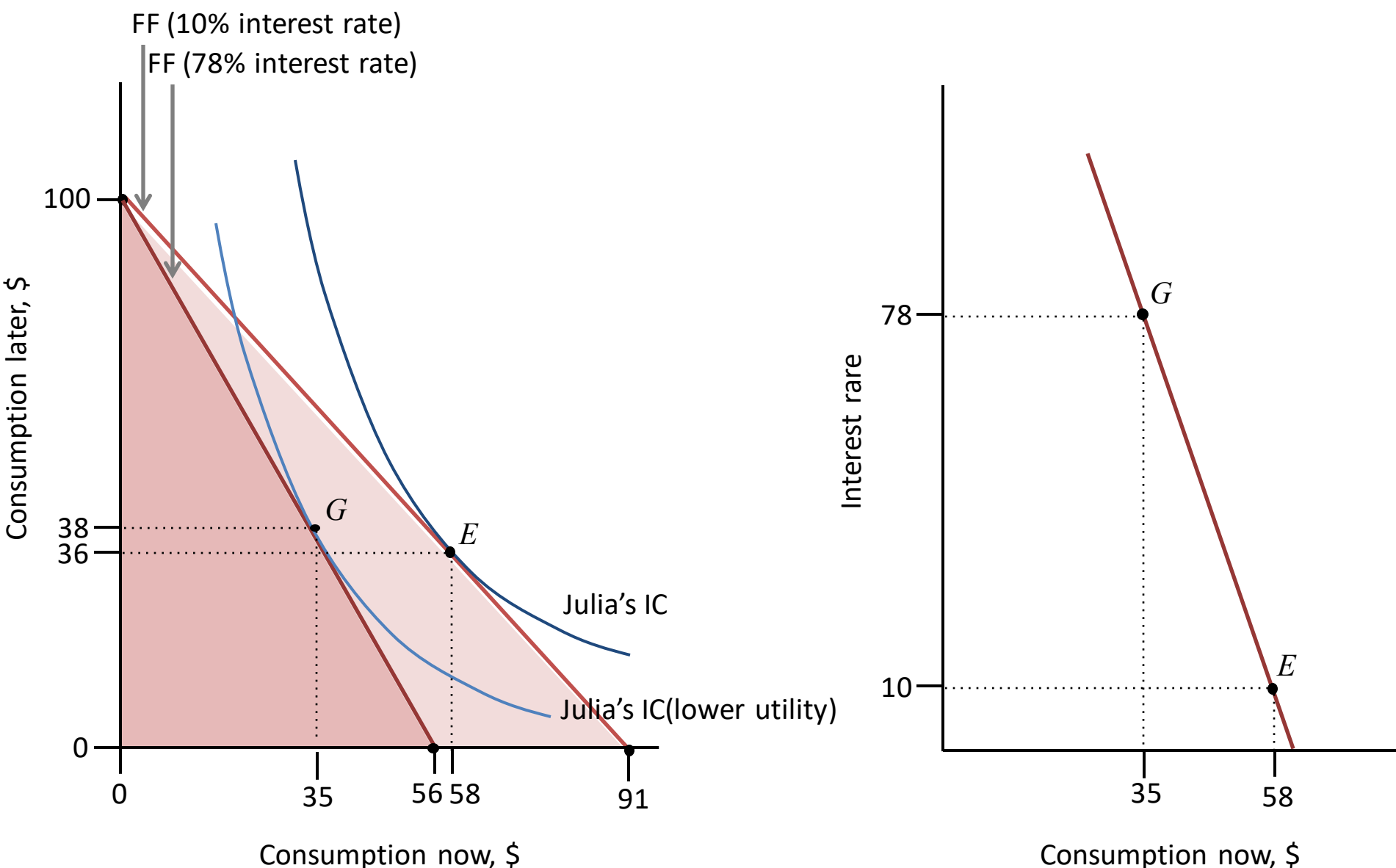


Figure 10.19. Principal-agent problems: The credit market and the labour market.

	<i>Actors</i>	<i>Conflict of interest over:</i>	<i>Enforceable contract covers</i>	<i>Left out of contract (or unenforceable)</i>	<i>Result</i>
<b>Labour market</b> (Unit 6)	Employer Employee	Wages, work (quality & amount)	Wages, time, conditions	Work (quality and amount), duration of employment	Effort under-provided; unemployment
<b>Credit market</b> (Unit 11)	Lender Borrower	Interest rate, conduct of project (effort, prudence)	Interest rate	Effort, prudence, repayment	Too much risk, credit constraints

Figure 10.20. Wealth, project quality, and credit.

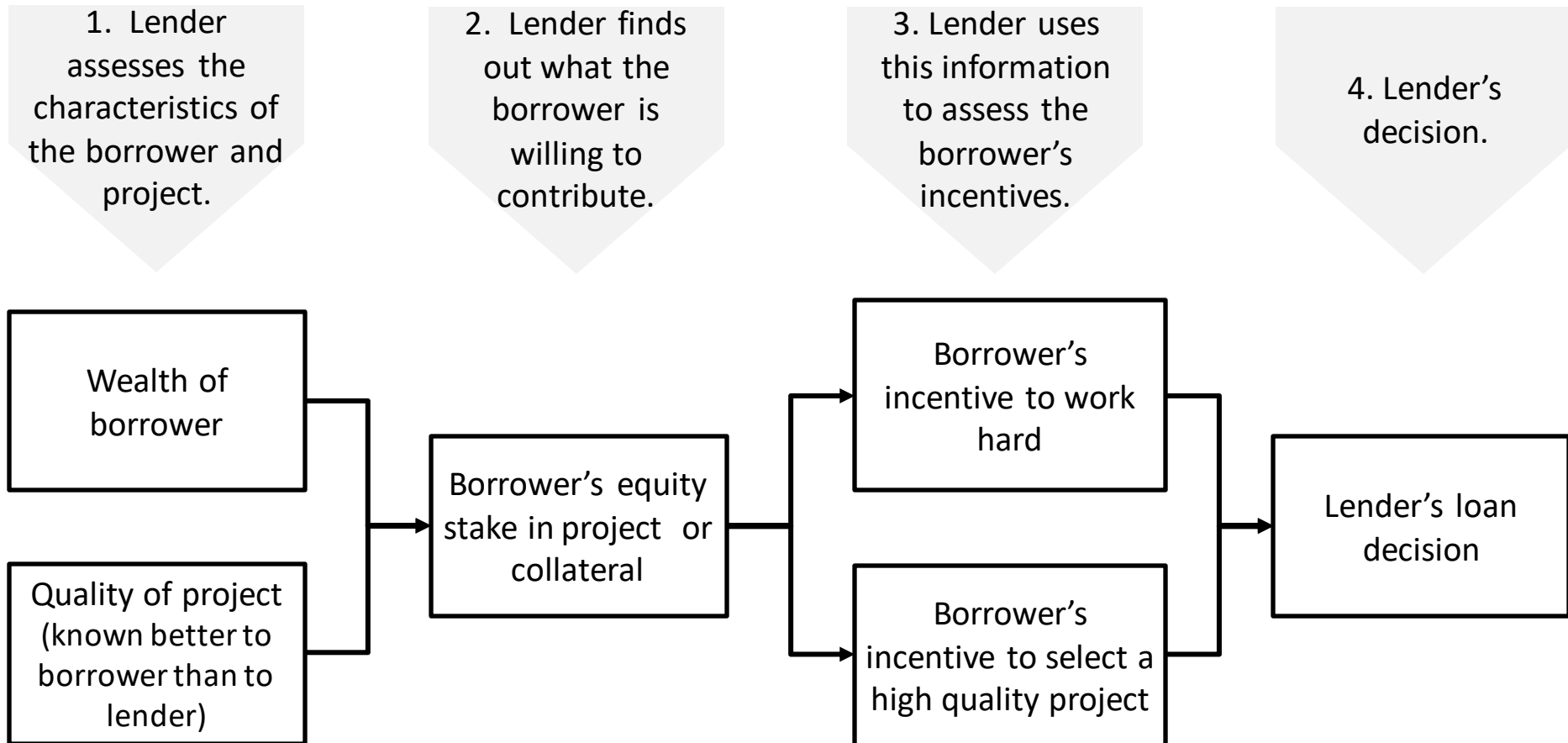


Figure 10.21. Inequality in a borrowing and lending economy.

