Questions to Prepare your Report.
Can they issue the debt or willing to buy or not willing.
a.   Which type of business can issue bonds?
         Corporations.
         A corporation is a distinct legal entity composed of one or more individuals. It is a legal person separate and distinct from its owners and it has many of the rights, duties, and privileges of an actual person. Corporations can borrow money and own property, can sue and be sued and can enter into contracts. Can only stock in another corporation as well. It is considered as a resident of the state and is created by preparing the articles of incorporation and a set of bylaws. Examples of corporations are Google and Apple.

b.   Is Dunn a company where there is a separation between management and ownership? If so, how responsive is management to stockholders?
Talking about them not us. Dunn is the corporation.
         Dunn company is a corporation which has stockholders and managers who then select managers. Managers are charged with running the corporation's affairs in the stockholders' interests. The stockholders control the corporation because they elect the directors. Having separation of ownership and management creates advantages such as ownership (represented by shares of stock) can be readily transferred and the life of the corporation is therefore not limited. The corporation borrows money in its own name. The stockholders have limited liability for corporate debts. The most they lose is what they put in. It can sell new shares for stock and attract new investors.
Managers make decisions for he stockholders of the firm. The goal is to maximize the current value per share of the existing stock (current stock value). (pg. 8 and 9)

c.   What are the advantages and disadvantages of this type of business organization?
•Advantages: Limited liability, Unlimited life, Separation of ownership and management, Transfer of ownership is easy, Easier to raise capital.
•Disadvantages: Double taxation (income taxed at the corporate rate and then dividends taxed at the personal rate).

d.   Using the financial statements in an appendix to calculate Dunn's Total Debt Ratio, Long-Term Debt Ratio, Times-Interest-Earned Ratio, and Cash Coverage Ratio.
Long-Term Debt Ratio: 2017: (97,207,000) / (97,207,000 + 231,404,000) = .419898 or 41.98%
                 2016: (75,427,000) / (75,427,000 + 203,042,000) =.371347 or 37.13%

Total debt ratio: Total Debt Ratio=Total assets / total liabilities (added total current liabilities and long term debt)

2016 - 79,006,000 + 75,427,000/282,048,000 = .547541553 = 54.75%
2017 - 100,814,000 + 97,207,000/332,218,000 = .596057408 = 59.61%

(Earnings Before Interest and Taxes + Non-Cash Expenses) ÷ Interest Expense
Cash Coverage Ratio: 2017: (58,599,000 + 2,745,000)/2,323,000 = 26.41 times; 2016: (46,401,000 + 1,348,000)/1,456,000 = 32.79 times

Times Interest Earned Ratio: 2017: 25.23 times (58,599,000/2,323,000); 2016: 31.87 times (46,401,111/456,000)

e.   What are your conclusions about Dunn's debt position?
The higher the debt ratio, the more leverage a company has, implying greater financial risk. At the same time, leverage is an important tool that companies use to grow, and many businesses find sustainable uses for debt. The total debt ratio for 2017 was 54.75%, which seems like a high ratio, but it all depends on the industry. In 2018 the debt ratio was 59.61%, meaning that the company is paying off their debts causing the rate to lower.

f.   What are the key features of a bond?
There are many features of a bond that are important to know before purchasing. The par value, also known as face value is the amount that will be repaid at the end of the loan, this is important to note how much you are spending. Coupon payment is the interest payment received from a bond, this is how much money you could potentially make from purchasing a bond. The coupon rate is the annual coupon divided by the face value, it is this rate that gives you that your payment interest. The maturity date is important to know because it is the date on which the par value is due. The yield or yield to maturity is the required interest in the market of a bond, meaning it is the estimated rate of return based on the assumption that it will be held until its maturity date and not called.

g.   How do you determine the value of a bond? Bond Value = C * [1-1 / (1+r)^t] / r + F / (1+r)^t
Bond Value = Present Value of the coupons + present value of the face amount.

h.   What is the value of a 10-year bond with $1,000 par value bond with a 9% annual coupon if its required rate of return is 9%?
N = 10, FV = 1,000, i/y = 9, PMT = 90 CPT PV
PV= 1,000

i.   What is the yield to maturity, the current yield, the capital gains yield, and the total return of this bond?
Yield to maturity= (N=10, FV=1,000, PV= -1,000, PMT= 90) = 9%

Current Yield = PMT (90) / PV (1000) = 9%

Capital Gains Yield = difference between yield to maturity and current yield = 9% - 9%=0

Total Return = (Coupon pymt + FV-PV)/PV

(90+1000-1000)/1000= 9%

j.   Suppose that the bond described in part (h) is callable in 5 years at a call price equal to $1,100. What is the yield to call (YTC) on the bond if its market value is $930? What is the YTC on the same bond if its current market price is $1,242.30?

N = 5   PV = 1000   PMT = 90   FV = 1,100   CPT I/Y = 12.53%   YTC = 12.53%

N = 5   PV = -930   PMT = 90   FV = 1,100   CPT I/Y = 12.52%   YTC = 12.52%

N = 5   PV = -1,242.30 PMT = 90   FV = 1,100   CPT I/Y = 5.18%   YTC = 5.18%

k.   (1) What would be the value of the bond described in part (h) if, just after it had been issued, the expected inflation rate rose by three percentage points, causing investors to require a 12% return? Is the security now a discount bond or a premium bond?

N = 10, FV = 1,000, i/y = 12, PMT = 90 CPT PV

PV= $830.49 discount

(2) What would happen to the bond's value if inflation fell, and return declined to 8%? Would it now be a premium bond or a discount bond?

N = 10, FV = 1,000, i/y = 8, PMT = 90 CPT PV

PV= $1,067.10 premium

(3) What would happen to the value of the 10-year bond over time if the required rate of return remained at (i) 12% or (ii) remained at 8%?

 If the rate of return remained at 12%, then the value of the bond would decrease because the bond would be selling at a discount. This means that the bond will eventually increase to get to its par value.

If the rate of return remained at 8%, then the value of the bond would decrease until par value.

L.   (1) What is the yield to maturity on a 10-year, 10% annual coupon, $1,000 par value bond that sells for $930.00? That sells for $1,242.30? What does the fact that a bond sells at a discount or at a premium tell you about the relationship between r_d and the bond's coupon rate?

N = 10

PV = -930

PMT = 100 = (1000*10%)

FV = 1000

YTM (I/Y) = 11.1985% Discount

_____

N = 10
PV = -1242.30
PMT = 100
FV = 1000
YTM (I/Y) = <u>6.6118%</u> Premium
The bonds sold at discount rate have grater YTM than premium rate. As a result the "r" is greater in the discount rate which makes the coupon rate greater than the interest rate which is the ideal.

(2) What is the current yield, the capital gains yield, and the total return in each case in question (j), (k) and (l)?
J) Current Yield
(Call price = $1,100)   90/1100=8.18%
(Call price = $930)   90/930=9.68%
(Call price = $ 1,242.30)   90/1242.3=7.24%
Capital Gain Yield =(FV-PV)/PV
(call price = $1,100)   (1100-1,000)/1000=10%
(Call price = $930)   1100-930/930=18.28%
(Call price = $1,242.30) (1100-1,242.30)/1,242.30= -11.45%
Total Return = (Coupon pymt+FV-PV)/PV
(Call price = $1,100)   (90+1,100-1000)/1000= 19%
(Call price = $930)   (90+1100-930)/930= 27.96%
(Call price = $1,242.30)   (90+1100-1242.3)/1242.3= -4.21%
K) Current Yield =90/830.49=10.83%
Capital Gain Yield = (FV-PV)/PV
(1000-830.49)/830.49= 20.41%
Total Return = Coupon+(FV-PV)/PV
(90+1000-830.49)/830.49= 31.25%
L) (Discount bond)
current yield =100/930=10.75%
Total return = <u>(Coupon+FV-PV)/PV</u>
(100+1000-930)/930= 18.28%
Capital gain yield = (FV-PV)/PV
(1000-930)/930= 7.53%
(premium bond)
current yield = 100/1242.30 = <u>8.05%</u>
Total return = Coupon pymt+(FV-PV)/PV
(100+1000-930)/930 =18.28%
Capital gain yield = (FV-PV)/PV
1000-1242.3)/1242.3=-19.50%

m.   What is *interest rate price risk?* Which bond in part (h) has more interest rate price risk, the one-year bond or the 10-year bond?

Interest rate price risk is the risk that an investment's value will change due to a change in the absolute level of interest rates. The 10-year bond would have more risk associated with it than the 1- year bond, because there is a greater probability that the interest rates could rise within a longer period of time than a shorter time.

n.   What is *interest reinvestment rate risk?* Which bond in part (h) has more interest reinvestment rate risk, assuming a 10-year investment horizon?

Interest reinvestment rate risk is the risk that is associated when interest rates go down, your interest will decline. The bond's yield to maturity is lowered. The reinvestment rate risk on long-term bonds is significantly less than on short-term bonds.

o.   Redo parts (h), (i) (j) (k) and (l), assuming that the bonds have semiannual rather than annual coupons.

H) N = 10*2, FV = 1,000, i/y = 9/2, PMT = 90 CPT PV

PV= $1,585.36

I) YTM = (N = 10*2, FV = 1,000, PV = -1,000, PMT = 90/2) = 4.5

Current Yield= PMT (90) / PV(1000) = .090

Capital Gains Yield = 9.0 - 9.0 = 0

((coupon pymt+FV-PV)/PV=Total Return

Total Return = (45+1000-1000)/1000=4.5%

J) N = 5*2   PV = -930   PMT =90/2   FV = 1,100   CPT I/Y = 12.53%   YTC = 12.53%

N=5*2   PV = -1,242.30   PMT = 90/2   FV = 1,100   CPT I/Y = 5.18%   YTC = 5.18%

K) N = 10*2=20 , FV = 1,000 , i/y = 12/2 = 6, PMT = 90 CPT PV

        PV = 1,344

L) Annual coupon rate and annual rate so change to semiannual?

N = 10*2 = 20, PV = -930, PMT = 100/2 = 50, FV = 1,000, YTM (I/Y) = 5.5901% Discount*2= 11.1802%

N = 10*2 = 20, PV = -1242.30, PMT = 100/2 = 50, FV = 1000, YTM (I/Y) = 3.3224%Premium*2= 6.6448%

p.   Suppose you could buy, for $1,000, either a 9%, 10-year, annual payment bond or a 9%, 10-year, semiannual payment bond. Both bonds are equally risky. Which would you prefer? If $1,000 is the proper price for the semiannual bond, what is the proper price for the annual payment bond?

I want to buy the semiannual because I am making more money by getting two payments a year.

Semiannual = PV = 1,000 Coupon rate = 9% PMT = 90 (1,000 x 9%) N = 20 (10 x 2) FV = 1,000 CPT Interest = 9%

Annual = CPT PV = 1,000
FV = 1,000 PMT = 90 N = 10 I/Y = 9%
The prices for the annual and semiannual bonds are the same.

q.   What is the value of a perpetual bond with an annual coupon of $100 if its required rate of return is 9%? 12%? 8%? Assess the following statement: "Because perpetual bonds match an infinite investment horizon, they have little interest rate price risk."

$Vd = PMT/r$

100 / .09 = 1111.11

100 / .12 = 833.33

100 / .08 = 1250

r.   What is your recommendation?

In conclusion, after comparing the bond's different yields, inflation, company risk, interest rate risk, maturity, and coupon payment period, the best recommendation for the Mutual of Maryville Company is to invest in the bonds issued by Dunn's Company. We believe that it would be best to invest in their bond at its current yield of $930 because of its high coupon rate of 9%. If purchased at this rate the Dunns company will earn 9% of the bond. In addition this bond will have a capital gain of 0 and a yield to maturity of _11.1985%. Moreover, after comparing the different total returns, the best choice is the total return for $930 because it gives us a yield to maturity 10.91%.

In addition, if the inflation rate rose from 10% to a required rate of return of 12%, the value of the new bond will be equal to a present value of $830.49. This bond would sell at a discount because the required rate of return 13% is higher than the coupon rate 10%, dropping the price from $930 to $830.49. On the other hand, of the expected rate decline to 8%, then the amount of the present value would be $1,067.10; this means that the bond would sell at a premium because the required rate of return 7% is lower than the coupon rate of 10%, raising the price from $930 to $1,067.10. The best option in this case is to accept when the required rate of return decline to 8% because the amount for the PV would be more; this means that this is a premium bond that will make more money and also it is less sensitive to fluctuations in interest rates.

In addition, the bond that has more interest rate price risk is the 10 year bond,   because the interest rate price risk is the risk that an investment's value will change due to a change in the absolute level of interest rates. The 10-year bond would have more risk associated with it than the 1- year bond, because there is a greater probability that the interest rates could rise within a longer period of time than a shorter time. Interest reinvestment rate risk however is the risk that is associated when interest rates go down, your interest will decline. The bond's yield to maturity is lowered. The reinvestment rate risk on long-term bonds is significantly less than on short-term bonds. After comparing all these calculations, we can conclude that the best option for Mutual of Maryville Company is to invest on the bonds issued by Dunn Company.

Appendix - Dunn company Financial Statement
BALANCE SHEET

All Numbers In Thousands

Assets	2017	2016
Cash	$ 20,289,000	$ 20,484,000
Net Receivables	$ 35,673,000	$ 29,299,000
Inventory	$ 4,855,000	$ 2,132,000
Total Current Assets	$ 55,962,000	$ 49,783,000
Gross Fixed Assets	$ 301,653,000	$ 259,010,000
Accumulated Amortization	$ (25,397,000)	$ (26,745,000)
Total Fixed Assets	$ 276,256,000	$ 232,265,000
Total Assets	$ 332,218,000	$ 282,048,000

Liabilities And Equity

Accounts Payable	$ 49,049,000	$ 37,294,000
Note Payable	$ 51,765,000	$ 41,712,000
Total Current Liabilities	$ 100,814,000	$ 79,006,000
Long Term Debt	$ 97,207,000	$ 75,427,000
Common Stock	$ 35,867,000	$ 31,251,000

Retained Earnings	$ 98,330,000	$ 96,364,000
Total Equity	$ 231,404,000	$ 203,042,000
Total Liabilities And Equity	$ 332,218,000	$ 282,048,000

INCOME STATEMENT

All Numbers In Thousands

	2017	2016
Sales	$ 229,234,000	$ 215,639,000
Cost Of Good Sold	$ (141,048,000)	$ (131,376,000)
Depreciation	$ (2,745,000)	$ (1,348,000)
Other Expenses	$ (26,842,000)	$ (36,514,000)
Total Operating Costs	$ (170,635,000)	$ (169,238,000)
EBIT	$ 58,599,000	$ 46,401,000
Interest Expense	$ (2,323,000)	$ (1,456,000)
Income Before Tax	$ 56,276,000	$ 44,945,000
Income Tax Expense (35%)	$ (19,696,600)	$ (15,730,750)
Net Income	$ 36,579,400	$ 29,214,250

EPS	$	**1.41**	$	**0.96**

Other Data

	2017	2016
December 31 Stock Price	$ 169.23	$ 115.85
Number Of Shares	25,999,900	30,586,300
Dividends Per Share	$ 0.63	$ 0.57

Industry average data for 2017

Ratio	Industry Average
Long Term Debt Ratio	0.75 Times
Total Debt Ratio	7.43 Times
Time Interest Earned	20 Times
Cash Coverage Ratio	21 Times