

Crane Company Issued \$560,000 Of 5-year, 9% Bonds At 95 On January 1, 2020. The Bonds Pay Interest Annually.

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Understanding the issuance of bonds is crucial for investors, financial analysts, and business owners alike. When Crane Company issued bonds, it engaged in a common method of raising capital that involves borrowing funds from investors, promising to pay back with interest over a specified period. This article provides an in-depth analysis of the bond issuance by Crane Company, including key concepts such as bond pricing, interest payments, accounting treatment, and implications for the company's financial statements.

Overview of Bond Issuance by Crane Company

On January 1, 2020, Crane Company issued bonds valued at \$560,000 with a maturity period of five years and a stated (coupon) interest rate of 9%. These bonds pay interest annually, and they were issued at a discount, at 95% of their face value.

What Does Issuing Bonds at 95 Mean?

When bonds are issued at 95, it signifies that they were sold at 95% of their face (par) value. Since the face value of each bond is \$560,000, the issue price can be calculated as follows:

- $\text{Issue Price} = \text{Face Value} \times \text{Issue Price Percentage}$
- $\text{Issue Price} = \$560,000 \times 0.95 = \$532,000$

This means Crane Company received \$532,000 in cash from bondholders at issuance, which is less than the face value, indicating a bond discount.

Understanding Bond Pricing and Yields

Bonds are often issued at a premium, at par, or at a discount depending on the relationship between the coupon rate and market interest rates at the time of issuance.

Coupon Rate vs. Market Rate

- Coupon Rate (9%): The rate Crane Company promises to pay annually based on the face value.
- Market Rate: The prevailing interest rate in the market at the time of issuance influences whether bonds are issued at a premium, at par, or at a discount.

Since the bonds were issued at 95 (below face value), the market rate of interest at the time was higher than the coupon rate, making the bonds less attractive unless sold at a discount.

Calculating Bond Discount and Premium

- Bond Discount: The difference between face value and issue price when bonds are issued below face value.
- Bond Premium: When bonds are issued above face value (not applicable here).

In this case:

$$\text{Discount} = \$560,000 - \$532,000 = \$28,000$$

This discount will be amortized over the life of the bonds, affecting interest expense and carrying value.

Interest Payments and Accounting for Bonds

Crane Company pays interest annually, at a 9% coupon rate, based on face value:

- Annual interest payment = Face value $\times$ Coupon rate
- Annual interest payment = $\$560,000 \times 9\% = \$50,400$

Since bonds are issued at a discount, the company incurs a higher overall interest expense over the life of the bonds due to amortization of the discount.

Journal Entries at Issuance

At issuance, Crane Company records the bonds payable and the cash received:

```plaintext

Dr. Cash \$532,000

Dr. Discount on Bonds Payable \$28,000

Cr. Bonds Payable \$560,000

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- The "Discount on Bonds Payable" account is a contra-liability account that reduces the bonds payable on the balance sheet.

Annual Interest Payment Entry

Each year, Crane Company records the interest expense, which includes the actual cash interest paid plus amortization of the discount:

```plaintext

Dr. Interest Expense

Cr. Cash (interest paid)

Cr. Discount on Bonds Payable (amortization)

```

The interest expense typically exceeds the cash interest paid when bonds are issued at a discount, reflecting the amortization process.

Amortization of Discount

Over the five-year term, the discount on bonds payable will be amortized, increasing the carrying amount of the bonds payable until it reaches the face value at maturity.

Methods of Amortization

- Straight-Line Method: Equal amount of discount amortized each period.
- Effective Interest Method: Recognized as the interest expense based on the bond's carrying amount and market rate of interest.

Most companies prefer the effective interest method as it provides a more accurate reflection of interest expense over time.

Example Calculation Using Effective Interest Method

- Initial carrying amount: \$532,000
- Effective interest rate: To be calculated considering the bond's market rate at issuance (not provided here, but usually close to the coupon rate plus the discount rate).
- Interest expense for Year 1: Carrying amount $\times$ Market rate.

Assuming the market rate is approximately 10%, then:

- Year 1 interest expense = $\$532,000 \times 10\% = \$53,200$
- Cash interest paid = \$50,400
- Discount amortized in Year 1 = $\$53,200 - \$50,400 = \$2,800$

This process repeats annually, with the carrying amount increasing by the amortized discount, until it equals \$560,000 at maturity.

Financial Statement Implications

Issuance of bonds impacts both the balance sheet and income statement.

Balance Sheet Effects

- Liabilities: Bonds payable increase by the face value of \$560,000.
- Contra-liability: Discount on bonds payable decreases the carrying amount of bonds payable initially, but increases over time as the discount is amortized.
- Cash: Increases by the amount received (\$532,000).

Income Statement Effects

- Interest Expense: Higher than the cash interest paid when bonds are issued at a discount, due to amortization.
- Net Income: May be lower initially because of higher interest expenses.

Implications for Crane Company and Investors

Issuing bonds at a discount indicates that the market perceives the bonds to carry higher risk or that prevailing market interest rates are higher than the coupon rate. For Crane Company, this means:

- The total interest expense over the life of the bonds will be higher than the cash interest payments.
- The company's liabilities increase, affecting leverage ratios.
- Investors receive a fixed annual interest income of \$50,400.

Advantages of Bond Financing

- Preserves ownership: Bonds do not dilute equity.
- Tax benefits: Interest expense is tax-deductible.
- Flexibility: Bonds can be structured with various terms to match company needs.

Risks and Considerations

- Increased debt obligations can strain cash flows.
- Market fluctuations impact the bond's market value.
- Higher interest expenses impact profitability.

Conclusion

Crane Company's issuance of \$560,000 of 5-year, 9% bonds at 95 demonstrates a strategic approach to raising capital through debt financing. By issuing bonds at a discount, Crane reflects prevailing market conditions and the associated risk profile. The bonds pay annual interest of \$50,400 based on the face value, but due to the discount, the company's interest expense will be higher than the cash interest paid, owing to amortization.

Investors benefit from fixed interest payments over the bond's life, while the company benefits from access to capital without diluting ownership. Proper accounting for bond issuance, interest payments, and discount amortization is essential for accurate financial reporting and analysis.

Understanding these principles helps stakeholders assess the company's financial health, leverage, and long-term strategic planning. As with any debt instrument, careful management of bond issuance and repayment is crucial to maintaining financial stability and achieving corporate objectives.

Keywords: bond issuance, bond discount, interest payments, financial statements, amortization, effective interest method, Crane Company, debt financing, bond accounting

Frequently Asked Questions

What is the issue price of Crane Company's bonds issued at 95, and what does it imply about the bond's market value?

The bonds were issued at 95, meaning 95% of their face value. Since the face value is \$560,000, the issue price is $\$560,000 \times 0.95 = \$532,000$. This indicates the bonds were issued at a discount, reflecting a market interest rate higher than the bond's coupon rate.

How will Crane Company record the initial journal entry for issuing the bonds at a discount?

Crane Company will debit Cash for \$532,000, debit Discount on Bonds Payable for \$28,000 (the difference between face value and cash received), and credit Bonds Payable for \$560,000.

What is the annual interest payment Crane Company must make to bondholders?

The annual interest payment is calculated as $\$560,000 \times 9\% = \$50,400$. This amount is paid annually on the bond's interest date.

How does issuance at a discount affect the bond's effective interest rate for Crane Company?

Issuing bonds at a discount increases the effective interest rate above the coupon rate. The company recognizes interest expense using the effective interest method, which amortizes the discount over the bond's life, resulting in higher interest expense in the early years.

What journal entry does Crane Company record at the end of each year to recognize interest expense and amortize the discount?

The company debits Interest Expense and credits Discount on Bonds Payable for the amortized amount, and credits Cash for the actual interest paid of \$50,400. The amortization increases the book value of the bonds toward their face value over time.

What will be the bond's carrying amount on December 31, 2024, assuming straight-line amortization of the discount?

Under straight-line amortization, the discount of \$28,000 is amortized equally over 5 years, resulting in annual amortization of \$5,600. After 5 years, the carrying amount will equal the face value of \$560,000. On December 31, 2024, the carrying amount will be approximately \$560,000, assuming full amortization.

Additional Resources

Bond Issuance Analysis: Crane Company's \$560,000 5-Year, 9% Bonds at 95 on January 1, 2020

Introduction to Bond Issuance

Bond issuance is a fundamental method by which corporations like Crane Company raise capital to fund expansion, operations, or refinancing efforts. The issuance of bonds involves borrowing funds from investors with a commitment to pay back the principal along with periodic interest. In this case, Crane Company issued bonds worth \$560,000 with a maturity period of five years, a stated interest rate of 9%, and an issuance price of 95, which indicates the bonds were issued at a discount.

This detailed review explores the various aspects of this bond issuance, including the key terms, accounting implications, valuation, and the broader financial context. It provides a comprehensive understanding suitable for investors, financial analysts, and students of

corporate finance.

Understanding the Key Terms

Bond Principal (Face Value)

- \$560,000: The total amount Crane Company borrowed from bondholders, also known as the face or par value.
- This amount is the basis for interest calculations and the amount to be repaid at maturity.

Coupon Rate and Interest Payments

- 9% annual coupon rate: The fixed percentage of the face value paid annually as interest.
- Interest payment per year:
- Calculation: $\$560,000 \times 9\% = \$50,400$
- Since bonds pay interest annually, Crane will pay \$50,400 each year for five years.
- Interest payment schedule: Annually on the same date each year, starting one year after issuance.

Issue Price and Discount

- Issued at 95: Means the bonds were issued at 95% of their face value.
- Issue price calculation:
- $\$560,000 \times 95\% = \$532,000$
- Discount on bonds:
- Face value: \$560,000
- Issue price: \$532,000
- Discount: $\$560,000 - \$532,000 = \$28,000$
- The bonds were issued at a discount because the coupon rate (9%) was lower than the prevailing market interest rates, making the bonds less attractive at face value.

Maturity Date

- 5-year term: Bonds mature on December 31, 2024, assuming the bonds were issued on January 1, 2020.
- At maturity, Crane will repay the full face value of \$560,000 to bondholders.

Interest Payment Frequency

- Annually: Interest payments are made once per year.
- This affects cash flow planning and accounting treatment.

Accounting for Bond Issuance

Initial Journal Entry

On January 1, 2020, Crane will record the issuance of bonds at a discount:

- Debit: Cash \$532,000
- Debit: Discount on Bonds Payable \$28,000
- Credit: Bonds Payable \$560,000

This entry recognizes the receipt of cash and the liability at face value, with the discount representing additional interest expense over the bond's life.

Amortization of Discount

- Since bonds are issued at a discount, the discount must be amortized over the life of the bonds.
- Methods:
 - Straight-line amortization: Equal amount each period—simpler but less precise.
 - Effective interest method: Recognizes interest expense based on the carrying amount and market rate at issuance, providing a more accurate reflection of interest expense.

Interest Expense Calculation (Effective Interest Method)

- For each year, interest expense = Carrying amount at beginning of year $\times$ market rate at issuance (approximate).
- Since bonds are issued at a discount, effective interest rate exceeds coupon rate, resulting in higher interest expense than cash interest paid.
- The amortization increases the carrying amount of the bonds over time until it reaches the face value at maturity.

Market and Financial Implications

Why Were Bonds Issued at a Discount?

- The bonds were issued at 95, indicating that the market's required rate of return on similar bonds was higher than the coupon rate of 9%.

- Investors demanded a higher yield, leading to a lower issue price.
- This suggests Crane Company's bonds were less attractive compared to other investment options at the time or that the company's creditworthiness was perceived as somewhat risky.

Impact on Financial Ratios and Covenants

- Debt-to-Equity Ratio: The addition of these bonds increases leverage.
- Interest Coverage Ratio: Must be analyzed considering annual interest payments of \$50,400.
- Covenants: The bond indenture might include covenants related to debt levels, restrictions on additional borrowing, or specific financial ratios.

Cash Flow Considerations

- Despite the discount, Crane will pay \$50,400 annually in interest.
- The initial cash inflow is \$532,000, which is less than the face value, affecting liquidity and working capital management.
- Over the five years, the company will also need to ensure it has sufficient funds to repay the principal of \$560,000 at maturity.

Valuation and Market Perspective

Present Value Calculations

- The bond's issue price reflects the present value of future cash flows:
 1. Interest payments: \$50,400 annually for 5 years.
 2. Principal repayment: \$560,000 at maturity.
- Discounted at the market rate (implied by the issue price at 95), the present value aligns with the \$532,000 received.

Yield to Maturity (YTM)

- Approximate YTM exceeds the coupon rate of 9% because of the discount.
- For bonds issued at 95, YTM might be around 10-11% depending on prevailing market conditions at the time.
- Investors consider YTM for assessing the true return.

Market Conditions in 2020

- The bond market was influenced by the economic climate, interest rate trends, and company-specific factors.

- The discount indicates a higher perceived risk or higher market interest rates compared to Crane's coupon rate.

Long-Term Financial Strategy and Impacts

Debt Management

- The five-year term provides a balance between manageable maturity and long-term financing.
- The company must plan for principal repayment in 2024, possibly through refinancing or utilizing cash reserves.

Interest Rate Sensitivity

- Given the fixed interest rate of 9%, Crane's interest expense remains constant over the term.
- If market rates decrease, existing bonds at 9% might become more attractive, affecting future issuance strategies.

Impact on Creditworthiness

- Successfully issuing bonds at a discount at favorable terms can enhance Crane's credit profile.
- However, the higher effective interest rate due to the discount might signal perceived higher risk.

Conclusion and Final Thoughts

Crane Company's issuance of \$560,000 of 5-year, 9% bonds at 95 encapsulates a strategic financial decision influenced by market conditions, company credit standing, and capital needs. The bonds' issuance at a discount signifies that investors demanded a higher yield, reflecting perceived risks or prevailing interest rates at the time.

From an accounting perspective, the company must recognize the bonds payable at face value and amortize the discount over the bond's life, impacting interest expense and financial ratios. The annual interest payments of \$50,400 will constitute a consistent cash outflow, while the initial cash inflow of \$532,000 provides funds for corporate purposes.

This bond issuance demonstrates a typical scenario faced by companies seeking debt financing—balancing attractive terms for investors with manageable costs for the issuer. It

also highlights the importance of understanding market conditions, interest rate environments, and the nuances of bond valuation and accounting treatment.

In the long term, Crane's management must ensure adequate cash flow to meet interest obligations and principal repayment, all while maintaining financial stability and supporting strategic growth initiatives. The issuance at a discount reflects prudent risk assessment and market responsiveness, ultimately shaping Crane Company's financial trajectory over the coming years.

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