



OCTOBER 27–30, 2013 | LAS VEGAS ORIGINAL→ESSENTIAL→UNBIASED→INFORMATION

Time is Money: Finding Your Working Capital Sweet Spot



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(What goes on in Vegas, STAYS in Vegas!!!)



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Today's Agenda

- Introductions
- Typical Working Capital Theory
- What's The Goal?
- What's The Cost?
- Let's Go To Zero
- Does Working Capital Hold Firms Back?
- Summary/Final Comments









Concept of Working Capital

- Gross working capital
- Net working capital











Gross Working Capital

- A generally accepted concept.
- It is the sum of the capital invested in total current assets of the business.
- Simply put,

GWC = CA











Net Working Capital

- A more specific concept which considers both current assets and current liabilities of the business.
- It is the excess of current assets over the current liabilities of the business during a particular period.
- If CA > CL then it's positive working capital
- If CA < CL then it's negative working capital
- Simply put,

NWC = CA - CL









Factors Determining Working Capital Requirements

- Nature or character of the business
- Size of business, scale of operations
- Production policy
- Manufacturing process / length of production cycle
- Seasonal variation
- Working capital cycle
- Rate of inventory turnover
- Credit policy
- Business cycle
- Rate of business growth
- Price level changes
- Earnings capacity and dividend policy









What's The Goal?

- Primary Goal of the Firm
 - Maximize owners' wealth
 - Maximize the stock price (shareholder value)
 - Minimize the cost of capital
 - Maximize the value of the firm

$$Value = \sum_{t=1}^{n} \frac{CashFlow_{t}}{(1+r)^{t}}$$









Factors That Determine Value





Cash Conversion Cycle











Cash Conversion Cycle











- WCR = (A/R + Inventory) A/P
- WCR is directly related to the firm's Cash Conversion Cycle (CCC)
- As the WCR (and CCC) increase...
 - Additional financing is required
 - Cash flow from operating activities is affected









	2008	2009	2010	2011
A/R	\$ 6,828,000	\$ 6,667,000	\$ 6,971,000	\$ 13,858,000
Inventory	\$ 5,643,000	\$ 4,694,000	\$ 4,958,000	\$ 7,981,000
A/P	\$ 2,772,000	\$ 2,142,000	\$ 2,320,000	\$ 6,190,000
Working Capital Req	\$ 9,699,000	\$ 9,219,000	\$ 9,609,000	\$ 15,649,000
	2008	2009	2010	2011
M/CD = 0/of/More				

Oblikss

20.0%

WCR as % of (Non-Cash) Assets

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19.5%



20.3%



14.5%



Net Cash Flow



Financial Professionals*



What's the Cost?

- The firm's working capital requirement must be financed with debt or equity.
- Suppose that the cost of financing the firm's WCR is 5.0%.

	_	2009	2010	2011
Annual Cost	\$	460,950	\$ 480,450	\$ 782,450

Olduras.

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Gains from Reducing Working Capital

 The firm reduces the A/R collection time by 1 day:

A/RBalance (DaysRec.)x
$$\left(\frac{\text{Sales}}{365}\right)$$

New A/R Balance = (88.7) x
$$\left(\frac{56,409,000}{365}\right)$$

New A/R Balance = \$13,708,160







Gains from Reducing Working Capital



- Reduction in A/R = \$149,840
- At an interest rate of 5.0%, the annual reduction in interest expense is \$7,492.
- Other ways to reduce working capital requirements
 - -Reduce inventory times/levels

-Increase accounts payable times/levels









Let's Go to Zero

- If reductions in working capital reduce financing costs and increase cash flow, why not go to zero?
- Factors that determine the firm's optimal working capital position.
- Does working capital actually add value?







Empirical Evidence on the Value of WC

 WC assets are valued by shareholders –Cash, A/R, Inventory

- But, value is conditional on
 - Financial constraints
 - Product market conditions
 - -Corporate governance







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Description of Sample Firms

- Samples consist of firms that were publiclytraded over the period 1970-2010
 - Panel datasets
 - -~50,000-100,000 observations
 - ~10,000 unique firms
 - Mean asset base is \$2.4B and average annual revenues equal \$2.1B
- Industry coverage

-Non-utility and finance industries









Methodology Used to Estimate Market Value

- Multivariate regression model that specifies excess returns as the dependent variable
 - -Faulkender and Wang, 2006
- Control variables account for investment and financing policies
- Relatively "clean" coefficient estimates that have "nice" interpretations









Benefits and Costs of Holding Cash

- Benefits
 - -Transactions
 - -Precautionary
 - -Speculative
- Costs
 - Opportunity costs
 - Agency costs





Market Value of Cash Holdings

- Shareholders value cash (Faulkender and Wang, 2006)
 - -Additional \$1 held in cash is worth \$0.75
- The MV of cash drops as cash is accumulated. Why?

 A one standard deviation increase in prior period cash holdings reduces the MV of an additional \$1 in cash by \$0.17

Value Drivers for Cash: Financial Constraints

- Value of cash increases w/ financial constraints (Faulkender and Wang, 2006)
 - Proxies for financial constraints include dividend payout ratio, firm size, bond rating, and commercial paper rating

• **Takeaway**: Shareholders recognize that internal liquidity is beneficial for firms w/ weaker access to external capital

Value Drivers for Cash: **Financial Constraints**

Value Drivers for Cash: **Financial Constraints**

Bond Ratings

Commerical Paper Ratings

Improved governance increases the value of cash (Dittmar and Mahrt-Smith, 2007), as cash allows managers to avoid capital market scrutiny

- MV of Cash = \$0.42 for a poorly governed firm
- MV of Cash = \$0.84 for a well governed firm
- Takeaway: Weak governance implies an increased likelihood of managers misusing cash (i.e., overpaying for acquisitions or undertaking unnecessary projects). Subsequently, shareholders discount the value of cash for firms w/ poor governance.

The Value of Cash Evolves

Decade	MV of Cash
1980s	\$0.61
1990s	\$1.04
2000s	\$1.12

- Variation over time is due to increased CF variability and credit risk
- Bates, Chang, and Chi, 2013

Benefits and Costs of Extending Trade Credit (TC)

- Benefits
 - Sales growth
 - Constrained customers
 - Product quality guarantee
 - Interest income (forgone discounts)
 - Reduced operating expenses
- Costs
 - -Financing and opportunity costs
 - Carrying costs (i.e., bad debt expenses and administrative costs)

Market Value of Extending TC

- Shareholders value receivables (Hill, Kelly, and Lockhart, 2012)
 - Additional \$1 of receivables is valued at \$0.45, which is significantly less than for the value of cash
- Takeaway: TC allows suppliers to form profitable B2B relationships w/ cash constrained customers.

Value Drivers for Extending TC

- Value of receivables varies with product market conditions
 - Industry Affiliation: MV of additional \$1 in A/R is worth an extra \$0.10 if the firm sells differentiated products
 - Competitiveness: MV of receivables increases for firms with lower market shares
 - Sales Variability: MV of A/R increases for firms with more volatile sales
- Value of A/R increases for financially constrained firms
 - Consistent with shareholders viewing receivables as "near cash"

Value of Inventory and WCR

- Shareholders value inventory for certain firms (Beauchamp, Hardin, Hill, and Lawrey, 2013)
 - Operating and financing conditions effect the MV of inventory

 Shareholders value increases in the WCR (Kieschnick, LaPlante, and Moussawi, 2013)
 – Each component of WCR is valued by investors

Limitations of These Studies

- Sample firms are large
- "Coarse" WC Data
 - -Lack of data on access to LOCs
 - -Composition of cash
 - -TC terms
 - -Only observe "window dressed" values
- Internal analysts can examine more interesting questions!

Does WC Destroy Shareholder Wealth?

- Not according to various academic studies. *But*, the value of WC is conditional on firm characteristics
- Implication: Benchmarking WC policies wrt to industryyear medians/means may lead to suboptimal decisions.
 - Example: Your most important customer just informed you that they need extra time to repay their current payables balance. You have additional borrowing capacity via your LOC, but your client is financially constrained. Your DSO is slightly higher than the current average industry DSO. What do you do?

