

# Topics In Finance

## Part IX—Working Capital Management

Judy Laux, Colorado College, USA

### ABSTRACT

*The final topic in a series looking at financial management from a theoretical perspective, working capital management provides the focus of the current article. We investigate how three key axioms—the risk-return tradeoff, agency conflicts, and stockholder wealth maximization—relate to this activity that occupies much of the financial manager’s time.*

**Keywords:** Working Capital; Short-term Financing; Liquidity

### INTRODUCTION

Most finance textbooks dedicate detailed coverage to how managers should handle the mechanics of the various financial management assignments, but they don’t spend much time addressing the theories that have shaped the approaches, especially the assumption of stockholder wealth maximization as the driving force, the positive relationship between risk and return, and agency theory. The purpose of this series has been to provide a forum within which to discuss these concepts. To date, the series has offered an introductory article to describe these three constructs and seven other articles covering financial analysis, leverage, the valuation of stocks and bonds, capital structure, capital budgeting, dividend policy, and mergers and acquisitions. [See Laux 2010 (a) through (d), as well as Laux 2011 (a), (b), and (c), and Laux 2012.] In this article, we visit working capital management, attempting to shed light on the following kinds of questions:

- What makes working capital so important?
- How do managers juggle the often competing demands for current assets and their financing?
- What role do risk and return play in this activity?
- Do managers struggle with agency conflicts?
- How can stockholder wealth be maximized (or compromised)?
- How do those external to the firm judge managers’ capability in handling working capital?
- What aspects of working capital management have researchers investigated, and what are their findings?
- What questions should the financial manager ask him or herself to help ensure good decisions?

We begin with a quick review of the mechanics of working capital management then discuss the important conceptual challenges. Given the variety of elements involved in working capital management (cash, accounts receivable, inventory, accounts payable, and short- and long-term financing), the literature is vast and deserves notice. Finally, we distance ourselves from the details and contemplate the more philosophical introspection that might serve managers (and their stockholders) by offering a set of broader questions to guide improvement.

### AN OVERVIEW OF WORKING CAPITAL MANAGEMENT<sup>1</sup>

Although investing in good long-term capital projects receives more press and hype than the day-to-day work associated with managing working capital, firms that do not handle this financial aspect well will not attract the capital necessary to fund those highly visible ventures; in other words, you must get through the short run to get to the long run. And, while the definition of working capital (current assets less current liabilities) might seem

---

<sup>1</sup> This section relies heavily on Block, Hirt, and Danielsen [2011], Chapters 6 through 8.

simple, managing it most certainly is not. Current assets can comprise a significant portion of total assets, and managers spend more than half their time involved in managing working capital, so it must be important. Liquidity lies at the heart of the challenge, and with high liquidity comes safety—and low returns (sound familiar?). So, while managers strive to keep sufficient cash to pay the bills and to extend enough credit and keep enough goods on the shelf to keep their customers happy, they also don't want excess amounts tied up in their lowest-returning assets. Likewise, financing these assets requires managers to choose between riskier but typically cheaper short-term financing and safer, more expensive long-term financing—in markets that are not always predictable.

Traditionally, investors and creditors have considered working capital a critical element to watch, as important as the financial position portrayed in the balance sheet and the profitability shown on the income statement. The “Funds Statement” of old looked at liquidity through a lens that recognized changes in current assets, current liabilities, and working capital. This approach has been transcended by the now-required “Statement of Cash Flows,” in part because analyzing working capital changes alone can disguise the underlying cash flow implications. In fact, it's often the interrelationships among the working capital components that create real challenges for the financial manager: Inventory must be purchased from suppliers (often on account), sold to generate accounts receivable, and collected in cash from customers to pay off those suppliers. Working capital must be “managed,” because the firm cannot always control how quickly the customers will buy, and once they have made purchases, exactly when they will pay. Controlling the “cash-to-cash” cycle is paramount. It becomes even trickier in a manufacturing setting, where materials, labor, and overhead elements must be combined to produce the inventory to be sold. Most textbooks devote coverage to the master budgeting approach to financial forecasting and/or the percent of sales method of estimating required new financing. Managers have more control over when they make disbursements than when cash will flow into the firm, and they want to limit the number of times they must go to the local bank for a short-term loan or to the long-term capital markets where they will face scrutiny.

To complicate the working capital picture further, sometimes current assets aren't really current assets. The growing firm must invest permanently in a certain level of inventory and accounts receivable, presenting a situation where long-term financing becomes appropriate for short-term assets (at least, in balance sheet classification terms). So, while matching current assets with current liabilities might seem prudent, this approach often results in too little liquidity and higher default risk. Maintaining access to the credit markets (both short- and long-term financing) and knowing when to use which represent part of this working capital assignment. The term structure of interest rates suggests that short-term financing is usually cheaper, but this is not always the case, and managers with good timing and wise choices will maximize shareholder wealth, while desperate managers caught short unexpectedly will decrease that wealth. In the shifting sands of credit markets, even conservative managers can find themselves in a financial posture that backfires when interest rates become inverted or credit becomes scarce, resulting in lower returns (higher financing costs) than expected, despite their careful watch. The following section investigates the role our axioms play in working capital management, offering more details about managing the individual components of working capital.

## **RISK AND RETURN, AGENCY CONFLICTS, AND STOCKHOLDER WEALTH MAXIMIZATION**

In connecting working capital to the basic tenets, one should begin with the simple statement that, as we move down the balance sheet from the most to least liquid assets, we also move from low risk and lowest expected returns to higher risk and higher expected returns. In theory, cash is kept for transactions purposes, precautionary uses, and speculative opportunities, and it yields very little return, per se. Yet the review of literature will discuss a number of studies about who holds the most cash and why, and it really isn't so simple. With cash, the primary agency conflicts arise when managers hoard cash (to avoid having to go to the capital markets), spend it on perquisites, or invest it rashly in marginal investments, including acquisitions, rather than paying dividends and risk raising future expectations about dividends. With regard to cash management, these actions pose the biggest threats to stockholder wealth maximization. Accounts receivable represent an investment, and managers must have some tolerance for bad debt expense to reap the appropriate returns from extending credit; zero uncollectible accounts indicates too strict a credit stance, and the firm's sales will be lower than they should be. To maximize stockholder wealth, comparing marginal revenues with marginal costs—in other words, thinking like an economist—is critical. Finally, inventory management is really cost control management, forcing managers to keep those costs (including ordering, carrying, and stock out costs) to a minimum to maximize shareholder wealth.

On the financing side of the working capital equation, risk and return are still positively related, and risk varies with how quickly the financing must be repaid (the sooner, the more risky), while the return side relates to interest costs, as described earlier. On a scale from most to least aggressive, managers face the following alternatives:

- Finance short-term assets with short-term debt and long-term assets with long-term debt. Since no “permanent” current assets would be financed with (typically) more costly long-term debt, this would be cheap, but risky.
- Find those permanent current assets and finance them with long-term debt; finance all truly current assets with short-term financing, leaving sufficient short-term credit available for emergencies. This carries moderate risk coupled with moderate return (cost).
- Finance all long-term and a good portion of short-term assets with long-term debt. This would be more expensive but safe.

One might ask, how do those external to the firm judge managers’ ability in the area of working capital? Posing the question from the manager’s perspective, Ek and Guerin [2011] offer advice about how to determine if the firm has the right level of working capital. Not a “one-size-fits-all” answer, the authors suggest benchmarking levels and trends against a peer group using publicly available data. Such analysis would no doubt include such measures as the current ratio, accounts receivable and inventory turnover, days in accounts payable, and the like. Managers must also recognize the nuances applicable to one’s own firm, industry, and country environment and customs, tempering the quantitative analysis with qualitative considerations. Offering “four pillars” as guidelines (pp. 146-46), the authors encourage managers to:

- “identify the true drivers” of working capital;
- involve internal parties in establishing goals, prioritizing them and measuring performance;
- attack the ideas most apt to produce large marginal returns;
- “drive the change” through use of cross-functional teams (combining finance and operational expertise).

In a single case study of an international company focused on growth (and the opportunity to finance it by freeing up working capital), the approach led to a 23 percent reduction in working capital over 12 months, a significant accomplishment.

On the “financing” side of working capital, trade credit (accounts payable) represents a major tool in financing current assets. If suppliers offer discounts for early payment, typically the financial manager will maximize firm value by taking those discounts, even if it requires short-term borrowing. Part of the assignment also is to maintain a good credit rating, and early payments can help guarantee that outcome. Bank and term loan management plays a role too. As outlined above, typically short-term credit is riskier but cheaper, but doing a good job of timing the short- and long-term credit markets can maximize shareholder wealth. Agency challenges arise when managers avoid the scrutiny of the capital markets by hoarding cash for those rainy days (when profitable projects arise and insufficient internal funding exists to exploit them). Much of the literature addresses this conflict, as outlined below.

## **WORKING CAPITAL IN THE LITERATURE**

Given the number of accounting elements related to working capital management and the importance of the financial environment in which it is carried out, it should come as no surprise that researchers have produced a high volume of literature on the subject. Addressing working capital as a “cushion” for financing long-term investments, some researchers focus on the risk and return aspect of liquidity. Other articles investigate the implications for free cash flow and dividend policy, because of the potential agency implications. Noting that poor working capital management can reduce stockholder wealth, many authors accent this characteristic. This section will review the literature as it relates to the conceptual tenets—risk and return, agency costs, and stockholder wealth maximization.

**Risk and Return Literature (Risk Avoidance as a Motivating Factor)**

As outlined in the conceptual summary above, current assets provide lower returns and present less risk than their noncurrent counterparts, and because of this, managers often place a premium on liquidity, especially in the face of cash volatility and imperfect markets. Cash volatility exists when managers are uncertain about product demand, accounts receivable collection, price fluctuations of inputs, or recessionary threat. Firms can experience market uncertainty in a number of ways, including their ability (or inability) to access external financing when promising investment opportunities arise. A number of studies address firms' cash holdings from the perspective of perceived risk, especially for firms on the liquidity borderline ("constrained"). A sampling of these findings follows:

- Financially constrained firms "...increase their cash holdings in response to increases in cash flow volatility." [Han and Qiu, 2007, p. 43]
- Constrained firms display more cash flow sensitivity than unconstrained firms, and they save more in recessionary settings. [Almeida, Campello, and Weisbach, 2004, p. 1779]
- "...firms with strong growth opportunities and riskier cash flows hold relatively high ratios of cash to non-cash assets." [Opler, Pinkowitz, Stulz, and Williamson, 1999, p. 3]
- "[H]igher cash flow volatility is associated with lower average levels of investments in capital expenditures..." (Minton and Schrand, 1999, p. 423)

In short, firms on the precipice and those facing significant swings in cash flows are more apt to hold higher levels of cash, and this tendency is magnified by promising future investments; managers do not want to be caught with cash shortages when good investments pop up. Furthermore, they want to avoid having to access the capital markets for funding those investments, doing what they can to ensure financing from current liquidity, as indicated by the following findings:

- "...an increase in future cash flow volatility leads the constrained firm to be more prudent, to increase cash holdings for more future investment by decreasing current investment. This precautionary motive of cash holding creates a positive relationship between cash holdings and cash flow volatility and a negative relationship between current investments and cash flow volatility for a financially constrained firm." [Han and Qiu, 2007, p. 45]
- "Firms that have the greatest access to the capital markets...tend to hold lower ratios of cash to total non-cash assets." [Opler, Pinkowitz, Stulz, and Williamson, 1999, p. 3]
- Liquidity and measures of future economic conditions are positively related, indicating that "firms build liquidity in anticipation of promising future investment opportunities." [Kim, Mauer, and Sherman, 1998, p. 355]

Furthermore, according to Kim, Mauer, and Sherman, excess liquidity can be defended on the basis of market imperfections. Specifically, if external financing is costly, firms have a rationale for keeping more liquidity. They find that larger firms (which typically have better access to external financing) hold less liquidity. In addition, these authors highlight two other aspects of risk and return—earnings volatility (risk) will lead to higher liquidity, and "lower returns on physical assets [PP&E] relative to those on liquid assets...[leads to]...larger positions in liquid assets" [p. 355]. Finally, one setting encourages lower liquidity: High returns on current investment opportunities. Managers use that liquidity to make sure these current projects are funded.

So what are the lessons of this literature? (1) Managers are cognizant of the fact that, while risk cannot be ignored, neither can potential returns. (2) Common causes of risk include cash shortages and limited access to external financing. (3) Maintaining higher liquidity represents a primary weapon against uncertainty. In short, on the whole, managers hold more cash than you might think because they don't like going to the markets to finance good projects, but holding more cash is justified if cash flows are volatile. The next section looks at literature concerned with the agency costs associated with working capital management.

### **Agency Conflicts (When Controlling Managers Matters)**

In the seminal article on agency costs, Jensen [1986] discusses the evils of free cash flows (cash remaining after capital expenditures and dividends). The temptations are to spend the cash on perquisites and inappropriate investments (those yielding less than the weighted average cost of capital), rather than paying it out as dividends. But Myers and Majluf [1984] make the case for holding extra liquidity, arguing that information asymmetry restricts firms' access to external financing; therefore, firms should stockpile liquid assets to finance future investment opportunities with internal funds. Several articles investigate the relationship between corporate governance structures and cash holdings; these articles suggest that strong corporate governance pays:

- The market more highly values the excess cash holdings of well-governed firms [Dittmar and Mahrt-Smith, 2007].
- Chen and Chuang [2009] report that, if growth firm shareholders believe strong governance structures are protecting their interests, they will accept high levels of cash holdings.
- Guney et al. [2007, as cited in Powell and Baker, 2010, p. 160] find that lower cash balances are associated with both strong investor protection and high ownership concentration.
- Faleye [2004] finds proxy fights are more likely to ensue if firms hold excess liquidity.
- Harford et al. [2008] discover that weakly governed firms with excess cash often disgorge it by investing in acquisitions and capital expenditures, resulting in lower profitability and valuation.
- Kalcheva and Lins [2007] “find that when external country-level shareholder protection is weak, firm values are lower when controlling managers hold cash.” (p. 1087)

In short, corporate governance structures can play an important role in protecting stockholders against the agency costs associated with poor working capital management.

While it might seem like interviewing the fox in the hen house, Powell and Baker [2010] survey managers to assess their beliefs about whether agency costs pervade the role of cash control. Managers contend that agency troubles do not prevail but admit that weak corporate governance is associated with high levels of cash holdings and lower profitability and firm valuation (p. 165). In addition to the superb review of literature Powell and Baker offer, they also survey managers to assess their beliefs about two other issues: (1) If there is support for an optimal trade-off approach to cash holdings (in which the optimal level of cash increases with the cost of external financing, the volatility of cash flows, and the return on future investment opportunities and decreases as returns on physical and liquid assets diverge) and (2) if there is support for a financing hierarchy explanation for cash holdings (wherein managers perceive no optimal level of cash because they are “indifferent” between using internally generated cash flows to repay debt or accumulating cash). The results indicate support for the optimal trade-off approach but little support for the financing hierarchy explanation (p. 155).

To summarize this agency-based literature, when excess cash builds up, managers are tempted to spend it on poor acquisitions, perquisites, or projects returning less than the WACC; they don't pay dividends for fear of setting high expectations for future dividends. This empirical work leads us to the next section, in which we investigate research that inspects whether stockholder wealth maximization holds in managing working capital.

### **Stockholder Wealth Maximization (What to Watch For)**

How does one really know if managers are maximizing stockholder wealth through working capital management? Tests of this stewardship take a number of forms in the literature. Whited [1992] measures managerial efficacy by relating working capital activities to investment behavior, suggesting that capital budgeting and working capital management are connected; to maximize stockholder wealth, managers must remain cognizant of that fact. Fazzari and Peterson [1993, p. 340] inspect working capital as a cushion for smoothing fixed investment (and avoiding capital markets). They contend that a “strong balance sheet” (high positive WC) can help protect against recession at the macro level (or weakened balance sheets can make recessions more pronounced). Finally, Graham and Harvey [2001, pp. 232-33], in summarizing survey evidence, “...find that informal criteria such as financial flexibility and credit ratings are the most important debt policy factors,” and cash flow volatility is important. It seems that managers must coordinate working capital and debt policy to protect shareholder wealth.

While the connections between short-term asset/liability management and long-term investment cannot be denied, good working capital maintenance also relates to other long-term managerial strategies. For John [1993], just as working capital management links to capital budgeting, it also shares ties to financial structure and dividend policy. In her investigation of the relationship between financial distress and liquidity, John distinguishes between hard contracts (fixed interest on bonds) and soft contracts (dividends): “A firm is in financial stress...when the liquid assets of the firm are not sufficient to meet the current liquidity requirements of its hard contracts” (p. 92). The mechanisms for dealing with this “mismatch” (increasing liquidity by selling assets or decreasing hardness through debt renegotiation) represent the costs of financial distress. She hypothesizes (and finds support for the contention that) “...the proportion of total assets invested by a firm in liquid assets...will be increasing in its costs of financial distress” (p. 92). She also finds that “collateral value” (as measured by the ratio of inventory and property, plant, and equipment to total assets) reduces the need for liquidity. Thus much of the “value-added” by good working capital management is to prevent the illiquidity that leads to financial stress.

In their efforts to balance the need for liquidity with investment demands, dividend expectations, and financing cost minimization, financial managers face choices among short- and long-term financing sources as well as internal funding. Beranek, Cornwell, and Choi [1995] support the view that “firms tend to match long-term sources of financing with long-lived assets, and short-term debt with short-lived assets...[and they] favor financing capital expenditures with short-term debt, either permanently or temporarily” (p. 207). In addition, the principle of managerial capitalism finds support—managers prefer internal financing, because it saves transactions and SEC compliance costs, avoids timing problems, costs less than selling new shares, permits low normal dividends, and helps existing owners retain control (p. 209). In sum: “Apparently firms, on average, significantly draw down net working capital before turning to the capital markets to finance capital expenditures” (p. 220). This suggests that, apart from the fact that this approach insulates managers from the scrutiny of the marketplace, it does seem to offer some promise of stockholder wealth maximization.

Another aspect of this tactic that might serve to further stockholder wealth, maturity matching, is investigated by Stohs and Mauer [1996]. They contend that, since working capital includes the financing of current assets, the debt maturity structure is related. This study finds that “larger, less risky firms with longer-term asset maturities use longer-term debt... [and] ...firms with high or very low bond ratings use shorter-term debt” (p. 279). The authors offer a good discussion of the wisdom of matching the maturity of liabilities to assets (p. 285): “If debt has a shorter maturity than assets, there may not be enough cash on hand to repay the principal when it is due. Alternatively, if debt has a longer maturity, then cash flows from assets cease, while debt payments remain due. Maturity matching can reduce these risks...” Thus, this study supports the idea that decisions related to working capital are important to wealth creation.

Shin and Soenen [1998, p. 37] offer the following observations about the relationship between working capital management and shareholder wealth:

- “Efficient working capital management is an integral part of the overall corporate strategy to create shareholder value.”
- “[W]e find ... a strong negative relation between the length of the firm’s net-trade cycle and its profitability. In addition, shorter net-trade cycles are associated with higher risk-adjusted stock returns.”
- “[D]ecisions that tend to maximize profitability [such as loosening credit and accepting longer collection periods] tend not to maximize the chances of adequate liquidity. Conversely, focusing almost entirely on liquidity [such as requiring cash-only sales] will tend to reduce the profitability of the company” (in reference to Smith, 1980).

Similarly, others support the link between good working capital management and stockholder wealth creation:

- Deloof [2003] investigates the working capital/profitability relationship, finding that “managers can create value for their shareholders by reducing the number of days [in] accounts receivable and inventory to a reasonable minimum” (p. 585). Accounts payable turnover is negatively related to profitability because less profitable firms wait longer to pay creditors.

- Faulkender and Wang [2006, p. 1957] find that “the marginal value of cash declines with larger cash holdings, higher leverage, better access to capital markets, and as firms choose greater cash distributions via dividends rather than repurchases.” Furthermore, “... the value (to the equity holder) of one additional dollar of cash reserves should vary considerably depending upon whether that dollar is more likely to go to: (1) increasing distributions to equity via dividend payments or share repurchases, (2) decreasing the amount of cash that needs to be raised in the capital markets, depending upon the firm’s capital market accessibility, or (3) servicing debt or other liabilities of the firm.” (p. 1958)

While these studies highlight actions that can help maximize stockholder wealth, a number of others suggest ways that managers can compromise that duty.

The following articles highlight three specific instances where managers can interfere with wealth creation: (1) using excess working capital to make unwise acquisitions, (2) adopting an overly aggressive working capital policy, and (3) mishandling trade receivables when times get tough. Harford [1999] addresses the first of these shortcomings, finding that firms with excess cash attempt more acquisitions and that these are value decreasing: “Cash-rich bidders destroy seven cents in value for every dollar of cash reserves held. ...the evidence supports the agency costs of free cash flow explanation for acquisitions by cash-rich firms” (p. 1969).

If appropriately weighing risk and return should lead to wealth creation, looking at the net operating working capital and the aggressiveness with which it is handled should offer insight into SWM. Hill, Kelly, and Highfield [2010, p. 783] find the following: “Sales growth, uncertainty of sales, costly external financing, and financial distress encourage firms to pursue more aggressive working capital strategies. Firms with greater internal financing capacity and superior capital market access employ more conservative working capital policies” (hold positive working capital). In the first case, this means piling risk on risk (being in a net debtor position and taking the chance of having to access credit markets), while the second case seems to head in the other direction, to an overly conservative posture (hoarding cash). “[T]hese outcomes suggest that firms with weaker internal financing ability, limited capital market access, and greater costs of external financing will more aggressively use payables relative to receivables and inventory” (p. 803). This would suggest behavior contrary to SWM.

When managers find their backs to the wall, their decisions can fly in the face of stockholder wealth maximization and can even threaten a firm’s survival. Molina and Preve [2009] describe just such a situation as they investigate managers’ actions when faced with profitability and cash flow problems:

*We find that firms increase trade receivables when they have profitability problems, but reduce trade receivables when they have cash flow problems. We also find that a firm that significantly cuts its trade receivables when in financial distress will experience an additional drop of at least 13% in sales and stock returns [and] the performance decline of a firm in financial distress is significantly higher if the firm cuts trade receivables than if it does not* (p. 663).

In short, when firms first start to encounter profitability problems, they are aggressive (extend more credit), but when they are truly distressed (encounter cash flow problems), they become conservative (restrict access to credit for their customers). According to Molina and Preve, “...decreases in trade receivables account for at least one-third of the drop in performance of firms in financial distress” (p. 665). This hardly represents value-maximizing behavior.

A few comments encapsulate the literature in this subsection. Working capital management is tough, because it is connected to capital budgeting and dividend policy as well as capital structure; managers cannot treat it in an isolated manner. Evidence exists that managers attempt to match maturities, avoid credit-threatening illiquidity, and maintain a short cash-to-cash cycle, but when they do get strapped, they often make value-decreasing decisions (such as cutting back on trade account receivables). In the following section, financial managers who do have stockholder well-being at heart receive counsel.

## COUNSELING THE MANAGER

Questions to pose that might create a mental path to better working capital management might include some of the following:

- In general, does our working capital policy maximize returns (or limit costs) per unit of risk? (Or, alternatively, do they limit risk per unit of return?)
- Have we recognized the interrelationships between maintaining liquidity and funding capital investments but not held more cash than necessary just to avoid the scrutiny of the long-term capital markets?
- Have we abused free cash flow, inappropriately redirecting cash to substandard investments and/or perquisites? (Okay, be honest...)
- Are we being attentive to interest rate fluctuations and maintaining our accessibility to short-term credit? Is our associated financing scheme aggressive (conservative) at the right time(s)?
- Have we focused too intently on one or two aspects of working capital, ignoring the effects on (or abandoning) other elements?
- Do we minimize our cash-to-cash cycle while maintaining good relationships with our customers and suppliers?

Each of these questions forces the financial manager to consider whether risk and return are being appropriately weighed, whether self-interest is playing a major role, and/or whether the long-run value of the firm is being maximized. In other words, they make the manager ask: Are the basic premises on which this series has been built providing the primary guidance?

## THIS SERIES CONCLUDES

With this look at working capital management, we conclude this series dedicated to the study of the various elements of financial management as they relate to risk and return, agency theory, and stockholder wealth maximization. If students and professors have found the brief coverage of mechanics, links to these conceptual underpinnings, and review of pertinent literature enlightening, the purpose of the series has been served.

## AUTHOR INFORMATION

**Judy Laux** is a Gerald L. Schlessman Professor of Economics and Business at Colorado College, teaching and researching in the areas of accounting and finance. The author wishes to thank both the Chapman Foundation and the Schlessman family for funding support for the current series. E-mail: [jlaux@coloradocollege.edu](mailto:jlaux@coloradocollege.edu)

## REFERENCES

1. Almeida, Heitor, Murillo Campello, and Michael S. Weisbach. 2004. "The Cash Flow Sensitivity of Cash." *The Journal of Finance*, Vol. LIX, No. 4: 1777-1804.
2. Beranek, William, Christopher Cornwell, and Sunho Choi. 1995. "External Financing, Liquidity, and Capital Expenditures." *The Journal of Financial Research*, Vol. XVIII, No. 2: 207-222.
3. Block, Stanley B., Geoffrey A. Hirt, and Bartley R. Danielsen. 2011. *Foundations of Financial Management*. 14<sup>th</sup> edition. New York: McGraw-Hill/Irwin.
4. Chen, Y-R. and W-T. Chuang. 2009. "Alignment or Entrenchment? Corporate Governance and Cash Holdings in Growing Firms." *Journal of Business Research*, Vol. 62, No. 11: 1200-1206.
5. Deloof, Marc. 2003. "Does Working Capital Management Affect Profitability of Belgian Firms?" *Journal of Business Finance & Accounting*, Vol. 30, Nos. 3 and 4: 573-587.
6. Dittmar, A. and J. Mahrt-Smith. 2007. "Corporate Governance and the Value of Cash Holdings." *Journal of Financial Economics*, Vol. 83: 599-634.
7. Ek, Ron and Stephen Guerin. 2011. "Is There a Right Level of Working Capital?" *Journal of Corporate Treasury Management*, Vol. 4, No. 2: 137-149.
8. Faleye, O. 2004. "Cash and Corporate Control." *Journal of Finance*, Vol. 59, No. 5: 2041-2060.

9. Faulkender, Michael and Rong Wang. 2006. "Corporate Financial Policy and the Value of Cash." *The Journal of Finance*, Vol. LXI, No. 4: 1957-1990.
10. Fazzari, Steven M. and Bruce C. Petersen. 1993. "Working Capital and Fixed Investment: New Evidence on Financing Constraints." *RAND Journal of Economics*, Vol. 24, No. 3: 328-342.
11. Graham, J. R. and C. R. Harvey. 2001. "The Theory and Practice of Corporate Finance: Evidence from the Field." *Journal of Financial Economics*, Vol. 60, No. 2-3: 187-243.
12. Guney, Y., A. Ozkan, and N. Ozkan. 2007. "International Evidence on the Non-linear Impact of Leverage on Corporate Cash Holdings." *Journal of Multination Financial Management*, Vol. 17, No. 1: 45-60.
13. Han, S. and J. Qiu. 2007. "Corporate Precautionary Cash Holdings." *Journal of Corporate Finance*, Vol. 13, No. 1: 43-57.
14. Harford, Jarrad. 1999. "Corporate Cash Reserves and Acquisitions." *The Journal of Finance*, Vol. LIV, No. 6: 1969-1997.
15. Harford, J., S. A. Mansi, and W. F. Maxwell. 2008. "Corporate Governance and Firm Cash Holdings in the US." *Journal of Financial Economics*, Vol. 87, No. 3: 535-555.
16. Hill, Matthew D., G. Wayne Kelly, and Michael J. Highfield. 2010. "Net Operating Working Capital Behavior: A First Look." *Financial Management*, Summer: 783-805.
17. Jensen, M.C. 1986. "Agency Costs of Free Cash Flow, Corporate Finance and Takeovers." *American Economic Review*, Vol. 76, No. 2: 323-329.
18. John, Teresa A. 1993. "Accounting Measures of Corporate Liquidity, Leverage, and Costs of Financial Distress." *Financial Management*, Autumn: 91-100.
19. Kalcheva, I. and K.V. Lins. 2007. "International Evidence on Cash Holdings and Expected Managerial Agency Problems." *Review of Financial Studies*, Vol. 20, No. 4: 1087-1112.
20. Kim, Chang-Soo, David C. Mauer, and Ann E. Sherman. 1998. "The Determinants of Corporate Liquidity: Theory and Evidence." *Journal of Financial and Quantitative Analysis*, Vol. 33, No. 3: 335-359.
21. Laux, Judith A. 2010. "Topics in Finance: Part I—Introduction and Stockholder Wealth Maximization." *American Journal of Business Education*, Vol. 3, No. 2: 15-21.
22. \_\_\_\_\_. 2010. "Topics in Finance: Part II—Financial Analysis." *American Journal of Business Education*, Vol. 3, No. 3: 81-88.
23. \_\_\_\_\_. 2010. "Topics in Finance: Part III—Leverage." *American Journal of Business Education*, Vol. 3, No. 4: 13-18.
24. \_\_\_\_\_. 2010. "Topics in Finance: Part IV—Valuation." *American Journal of Business Education*, Vol. 3, No. 9: 1-6.
25. \_\_\_\_\_. 2011. "Topics in Finance: Part V—Capital Structure." *American Journal of Business Education*, Vol. 1, No. 1: 79-87.
26. \_\_\_\_\_. 2011. "Topics in Finance: Part VI—Capital Budgeting." *American Journal of Business Education*, Vol. 4, No. 7: 29-37.
27. \_\_\_\_\_. 2011. "Topics in Finance: Part VII—Dividend Policy." *American Journal of Business Education*, Vol. 4, No. 11: 25-32.
28. \_\_\_\_\_. 2012. "Topics in Finance: Part VIII—Mergers and Acquisitions." *American Journal of Business Education*, Vol. 5, No. 4: 369-76.
29. Minton, B. and C. Schrand. 1999. "The Impact of Cash Flow Volatility on Discretionary Investment and the Cost of Debt and Equity Financing." *Journal of Financial Economics*, Vol. 54: 423-460.
30. Molina, Carlos A. and Lorenzo A. Preve. 2009. "Trade Receivables Policy of Distressed Firms and Its Effect on the Costs of Financial Distress." *Financial Management*, Autumn: 663-686.
31. Myers, S.C. and N.S. Majluf. 1984. "Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have." *Journal of Financial Economics*, Vol. 13, No. 2: 187-221.
32. Opler, Tim; Lee Pinkowitz; Rene Stulz, and Rohan Williamson. 1999. "The Determinants and Implications of Corporate Cash Holdings." *Journal of Financial Economics*, Vol. 52: 3-46.
33. Powell, Gary E. and H. Kent Baker. 2010. "Management Views on Corporate Cash Holdings." *Journal of Applied Finance*, Vol. No. 2: 155-168.
34. Shin, Hyun-Han and Luc Soenen. 1998. "Efficiency of Working Capital Management and Corporate Profitability." *Financial Practice and Education*, Fall/Winter: 37-45.

35. Stohs, Mark Hoven and David C. Mauer. 1996. "The Determinants of Corporate Debt Maturity Structure." *Journal of Business*, Vol. 69, No. 3: 279-312.
36. Whited, Toni M. 1992. "Debt, Liquidity Constraints, and Corporate Investment: Evidence from Panel Data." *The Journal of Finance*, Vol. XLVII, No. 4: 1425-1460.