



Is working capital management value-enhancing? Evidence from firm performance and investments



Nihat Aktas^{a,*}, Ettore Croci^b, Dimitris Petmezas^c

^a *WHU Otto Beisheim School of Management, Vallendar, Germany*

^b *Universita' Cattolica del Sacro Cuore, Milan, Italy*

^c *Surrey Business School, University of Surrey, Guildford, Surrey GU2 7XH, UK*

ARTICLE INFO

Article history:

Received 26 May 2014

Received in revised form 9 December 2014

Accepted 18 December 2014

Available online 24 December 2014

JEL classification:

G31

G32

Keywords:

Working capital management

Performance

Investment

Risk

ABSTRACT

We examine the value effect of working capital management (WCM) for a large sample of US firms between 1982–2011. Our results indicate (i) the existence of an optimal level of working capital policy; and (ii) firms that converge to that optimal level (either by increasing or decreasing their investment in working capital) improve their stock and operating performance. We also document that corporate investment is the channel through which efficient WCM translates into superior firm performance. In particular, efficient WCM allows firms to redeploy underutilized corporate resources to higher-valued use, such as the funding of cash acquisitions.

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1. Introduction

Working capital management is a notion that traditionally appears in all standard corporate finance textbooks highlighting its importance for corporations. At the end of 2011, US firms' total investment in working capital (i.e., inventories plus receivables) amounted to \$4.2 trillion, which accounts for 24% of their total sales and above 18% of the book value of their assets.¹ Almost 40% of this aggregate working capital has been financed by accounts payable (i.e., supplier credit), leading to an aggregate investment in net operating working capital (NWC) of \$2.5 trillion.²

Practitioner-oriented articles emphasize that a substantial portion of working capital investment is not necessary. Ek and Guerin (2011) argue that there is tremendous latitude for improving the efficiency of working capital management (WCM) in most companies. Ernst and Young (2012), in its WCM report devoted to the leading 1000 US companies in year 2011, highlights that the unnecessary portion of NWC represents between \$330 billion and \$590 billion. This range of cash opportunity corresponds to, respectively, between 3% and 6% of their aggregate sales.³ Buchmann et al. (2008) stress that the power of NWC as a potential source of cash to fund

* Corresponding author. Tel.: +49 261 6509 224.

E-mail addresses: nihat.aktas@whu.edu (N. Aktas), ettore.croci@unicatt.it (E. Croci), d.petmezas@surrey.ac.uk (D. Petmezas).

¹ Source: Compustat database.

² In its simplest expression net operating working capital (NWC) corresponds to inventories plus receivables minus accounts payable. Throughout the paper, instead of considering the component of NWC in isolation, we follow Sartoris and Hill (1983) and adopt an integrated cash flow approach to working capital management (see, e.g., Hill et al. (2010) and Kieschnick et al. (2013) for a similar approach).

³ Our own estimate of the unnecessary portion of NWC in 2011 for our sample firms (3431 firms) amounts to an aggregate value of \$790 billion. This corresponds to 4.5% of their aggregate sales in 2011. To estimate the unnecessary portion of NWC for our sample firms in 2011, we sum all the positive industry-median adjusted NWC.

growth is often neglected by companies. The following anecdotal evidence from the same authors is particularly interesting: “[...] one company cut working capital by 30 percent and used the cash to fund a major acquisition in Asia without having to take on debt and the associated interest costs.”

The aforementioned practitioner view on WCM naturally raises the following questions. Do firms indeed over-invest in working capital as claimed by practitioners? To what extent does the decrease in unnecessary cash tied up in working capital translate into higher firm performance? Do firms cut excessive working capital to fund capital expenditures and acquisitions? The aim of this paper is to provide answers to these questions.

The literature proposes several theoretical arguments to understand the relation between working capital and firm performance. On the one hand, additional investment in working capital is expected to have positive effects, in particular for firms with low level of working capital. This is because working capital allows firms to grow by increasing sales and earnings. Larger inventories are known, among other issues, to reduce supply cost, provide hedge against input price fluctuations, and minimize loss of sales due to potential stock-outs (see, e.g., [Blinder and Maccini \(1991\)](#), [Fazzari and Petersen \(1993\)](#) and [Corsten and Gruen \(2004\)](#)). Supplying credit to customers may also affect positively firm sales because it allows for price discrimination, serves as a warranty for product quality, and fosters long-term relationship with customers (see, e.g., [Brennan et al. \(1988\)](#), [Long et al. \(1993\)](#) and [Summers and Wilson \(2002\)](#)). On the other hand, overinvestment in working capital may generate adverse effects and lead to value destruction for shareholders. Like any investment, increases in working capital require additional financing, which in turn involves financing and opportunity costs (see, e.g., [Kieschnick et al. \(2013\)](#)). Therefore, *ceteris paribus*, firms that hold high working capital on their balance sheet potentially face also high interest expenses and bankruptcy risk.⁴ Moreover, too much cash tied up in NWC might also impede firms from implementing value-enhancing investment projects in the short run (see, e.g., [Ek and Guerin \(2011\)](#)). The existence of potential benefits and costs implies therefore a non-linear relation between working capital level and firm performance, with the expected relation being negative for firms with high level of working capital (i.e., overinvestment in NWC) and positive for firms with low level of working capital (i.e., underinvestment in NWC).

For firms with excessive working capital, we propose corporate investment as a possible channel through which the decrease in unnecessary working capital from one period to the next translates into higher firm performance. If a firm cuts working capital to re-deploy underutilized resources to higher-valued uses, working capital reductions should be associated with an increase in firm performance (see, e.g., [Atanasov and Han Kim \(2009\)](#) for similar arguments on asset sales). Motivated by prior literature which suggests that working capital could be considered as a source of internal fund ([Fazzari and Petersen \(1993\)](#) and [Eckbo and Kisser \(2013\)](#)), or substitute to cash ([Bates et al. \(2009\)](#)), we argue in this paper that corporate investment is a potential channel through which improvement in WCM should affect firm performance. Indeed, the decrease in unnecessary NWC through time increases firm's financial flexibility in the short run thanks to the release of unnecessary cash invested in working capital, and also in the long run thanks to relatively less financing needs to fund day-to-day operating activities. Additionally, financially flexible firms have a greater ability to take investment opportunities (see, e.g., [Denis and Sibilkov \(2010\)](#) and [Duchin et al. \(2010b\)](#)). For firms with unnecessary NWC, we therefore expect a negative relation between NWC and corporate investment (i.e., a positive relation between the decrease in unnecessary NWC across time and corporate investment). For firms with already low level of NWC, corporate investment sourced by working capital reductions is almost impossible. We therefore do not expect a negative relation between NWC and corporate investment for firms with underinvestment in NWC.

To assess the effect of WCM on firm performance and investment, we use a sample of 15,541 unique Compustat firms with available observations between 1982 and 2011. We first document that the cross-sectional average and median NWC-to-sales ratio has decreased significantly through time between 1982 and 2011, from 24% to 17%.⁵ Then, we measure the effect of improvement in WCM on stock performance. We document, using fixed effects regressions, that the relation between excess NWC and stock performance is non-linear; the relation is negative for firms with positive excess NWC (i.e., positive industry-median adjusted NWC), and positive for firms with negative excess NWC. The results indicate the existence of an optimal level of NWC, and firms that converge to that optimal level increase their stock performance. The corresponding economic effect is quite substantial: a one standard deviation decrease (increase) in positive (negative) excess NWC is associated with an increase of 0.90% (0.85%) in excess stock return over the next year.⁶

We next examine for firms that have unnecessary cash tied up in working capital whether corporate investment is a potential channel through which improvement in WCM translates into superior firm performance. Following [Bates et al. \(2009\)](#), we consider both capital expenditures and cash outflows associated with acquisitions as measures of corporate investment. Our results strongly support our conjecture as we find for firms with positive excess NWC that the release of unnecessary cash invested in working capital is positively associated with an increase in corporate investment over the next period. The corresponding economic effect is economically meaningful. A one standard deviation decrease in excess NWC is associated with an average increase of 0.60% in the unanticipated component of corporate investment (relative to total assets) over the next year. For the average firm in our sample, this corresponds to an increase in investment of \$1.8 million. Among the components of corporate investment, the negative effect of positive excess NWC on total investment is essentially driven by the impact of excess NWC on cash acquisitions (which are known in the

⁴ Concerning the financial risk associated with holding high working capital, the illustration in [Shin and Soenen \(1998\)](#) is particularly relevant. In 1994, Wal-Mart and Kmart were two similar companies in terms of capital structures, but Kmart had a substantially higher NWC relative to its sales in comparison to Wal-Mart. Kmart went into financial troubles essentially due to the financial costs of its poor WCM. The company closed 110 stores in 1994, and ultimately filed for Chapter 11 bankruptcy protection in 2002.

⁵ It is common in the literature to relate the firm's NWC to its sales.

⁶ The economic effects are systematically computed using the average within-firm standard deviation, which is circa half of the sample standard deviation in our sample.

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