Working Capital Investing Policy under Economic Recession Focusing on Small-medium Size Companies

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A small business's working capital is faced with many constraints passing through a financial recession since 2008. The paper investigates how the working capital investment policies of small firms in the United States impact their profitability and their impact over the recession. The multivariate panel regression models are estimated by using 100 best small company data over 2002 through 2011. The small firms need a conservative strategy for higher profitability and Tobin's Q. Comparatively, after recessions, a small firm will need a conservative strategy, whereas, they need a less conservative strategy for the higher Tobin's Q.

JEL Codes: G01, and G31

1. Introduction

A small business's Working Capital Investment Policy (WCIP) is faced with many constraints, such as market competition, paucity and uncertainty of adequate funding, financial restrictions, and costs of capital (Filbeck & Krueger, 2005). Filbeck, Krueger and Preece, (2007) further argued that the WC challenges have made the job of business owners more challenging with decreased efficiency of Working Capital (WC) strategies. It is noteworthy that Padachi (2006) alluded that WC is critical to a company just as blood is critical to human-beings in order to sustain life; therefore, WC is a life and death decision for a firm. In other words, small firms require efficient WC strategies to provide for day-to-day operational needs, such as paying wages and salaries and paying vendors and creditors (Appuhami, 2008). WC strategies help a firm pay on accounts, government taxes, and ensure long-term survival of the firm.

A firm that is unable to provide continuous funding for its working capital needs may be forced to abandon attractive growth opportunities (Padachi, 2006). This study is motivated by the struggles many small businesses face in the course for survival in a fast growing economy where competition is stiff and failure is unapologetic. Many small cities in the US survive on the business acumen of their residents and there is little or no large industry or government agency to cater to their employment needs. The recession of 2008 had adverse and untold hardship on profitability of many businesses, most of which collapsed, and never survived. This was because the financial institutions that lent money for growth of small businesses developed and introduced complicated different types of security such as "collateral debt obligation" (CDO).

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The complexities of funding resources for small business coupled with the challenges of redefining the measurement of profitability with the use of long term resources will advance the contribution of this study to small business's financial management.

Studies on the impact of recession on small business profits are limited. And this created an important reasoning to work on this study. Without any doubt, the effect of the United States economic contrasts of the last decade (2001-2010) created a brutal uncertainty for small firms. The United States small business environment had transitioned from growth in its many industrial sectors to recession within the ten year period (Elwell, 2011). The earlier part of the decade helped boost both domestic and global demand for products that originated from the United States. Mitigating the robust growth of the period (2001 to 2006) were the policy options that were limited by political factors that restrain further fiscal stimulus, and market responses to debt distress (Arieff, Weiss, & Jones, 2010). By early 2007, the U.S. economy showed signs of distress by way of crises among banks and financial institutions (Liberals & Democrats workshop, 2008). The financial distress resulted in credit restrictions for all types of business entities in the nation. By the end of 2008, the economic situation had worsened, and firms of different size and reputations suffered losses and employment because of limited or lack of working capital funding. The poor economic situations of 2007/2008 lead to government bailout of financing and manufacturing firms in the United States. The purpose of this study is to investigate how working capital of small firms in the United States impacts their profitability and its impacts over the recession. The next section will review the previous literatures, and a WC impact model will be introduced with the used data. Then the analysis results will come with the conclusion.

2. Literature Review

There are two perspectives on the relationship between working capital and a firm's profitability and values. The first one is the negative relationship that the WC may decrease the firm's profitability. The excess WC above the normal level (including cash, receivables, and inventories) could result into mismanagement and waste of resources due to lag-time, interest on borrowings, and lack of opportunities for future operational growth (Padachi, 2006). Second perspective, is the positive approach in which the WC resources are used to implement the "on-time" approach to procurement and utilization of WC components. This WC approach, according to Nazir and Afza (2009) saves time, money, waste, and improves profitability. Also, the positive relationship has an advantage of cost reduction such as avoidance of the delayed payments and active inventory management through the adequate level of WC (Teruel & Solano, 2007).

Theoretically, WC management requires a firm to fund the gap that exists between its short-term assets and short-term liabilities (Nazir & Afza, 2009). Therefore, the elements of a firm's WCIP that requires daily attention of management include cash, account receivables, marketable securities and inventories, minus accounts payable, short-term notes payable and accruals. Nazir and Afza (2009) argued that WCIP is aggressive when the ratio of current assets is low against total asset. In other words, low level WCIP assets will reduce waste of resources; eliminate inventory pile-up, and stock-outs. It will also decrease receivables turnover, and ultimately increase a firms' profit. In contrast, high level of investment in current assets is the view of conservatives, which believes that when current assets are not minimized there will be enough inventories to sell (Weinraub & Visscher, 1998). In other words, more

goods will be available to sell and cash will eventually be exchanged for goods. However, the risks of this approach is enormous because excessive current assets allows for the problems of inventory pileup, increase in uncollectible debt, increased accounts payable, theft and ultimately reduced profitability.

Filbeck and Krueger (2005) demonstrated how important working capital is to a firm when they used financial ratios to study 32 nonfinancial industries in the United States. This 2005 study focused on two research questions, first was if working capital measures were at consistent level within the same industry, and second, was whether WC management performance within the same industry changes on yearly basis. The study measured average working capital variables for a five years period in areas of cash conversion efficiency, day's working capital, days sales outstanding, days payables outstanding, and inventory turns/year (days). The findings showed significant differences among industries in WC practices over time, and concluded that WC practices change significantly within industries overtime. However, the study did not address the issue of WC impacts during a recession.

Weinraub and Visscher (1998) discussed the issue of WC strategies. The study used the quarterly data of 10 different United States industries from 1984 to 1993. The study focused on determining whether there were significant working capital policies within industry. Also, the study investigated whether an industry that follows investment policies, has the tendencies to use financing policies. The two issues were analyzed to understand the relationships among the approaches to WC strategies in firms. The research findings concluded that, industries had distinctively, and significantly different WCM policies; the research showed that a significant negative correlation exist between industry investment, and financing policies, and firms achieve better profitability performance when there is an optimal combination of investment and financing approaches to WC strategy.

Challenges of WC phenomenon, has been on how to achieve the optimum mix among the components of a firm's WC and inconsistency in applying WC policies by firms. Many studies (Weinraub and Visscher, 1998, Filbeck and Krueger, 2005, Nazir and Afza, 2009) are critically different in their study outcomes. In an attempt to resolve these inconsistencies of WC, Nazir and Afza (2009) stated that "the goal of management strategy in WC should be to balance the use of accounting elements comprised of WC. Weinraub and Visscher (1998). On the other hand, response to the inconsistency in the use of WC policies shows that no management policy approach is superior to the other, and that WC policy cannot be prescribed for an industry or firm.

Falope and Ajiboye (2009) stated that the component of a firm's net working capital investment (current assets) includes cash, inventories, short-term receivables and other prepayments. While on the financing side (current liabilities), it includes short-term notes and payables. Striking a balance between current assets and current liabilities is important to a firms' management because firms need to maintain sufficient current assets to enable them meet short-term claims as they become due. A firm's inability to perform its financial obligation towards short-term creditors (current liabilities) would create economic losses and entitle the short-term creditors to take steps to put the firm into liquidation.

In February 2009, Martin Felstein, a member of the National Bureau of Economic Research (NBER) Business Cycle Dating Committee argued that the massive downturn in the US

economy is driven by an unprecedented loss of household wealth. Buoyant household wealth is a factor in a nation's wealth measurement; it also contributes to an individual firm's profitability through increased sales and total national growth in domestic production of goods and services. Many of the firms that existed in the period between 2001- 2010 had problems of survival because of poor profitability performances. Those that survived were barely making ends meet; needless to say, many more had to go bankrupt because of the weak WC investing and financing strategies of their management (Filbeck et al, 2007). Our study critically conceptualized the net working capital theory as it affects both the investing and financing policies' impact on a firm's profitability in the period of recession.

Finance and accounting theorists allude that profitability champions the reasons why firms and businesses are established. Stickney & Weil, (2008) demonstrated that WC is an active player in the process of a firm making a reality of its profitability goal. The process of acquiring current assets with current liabilities is a modern business marketing strategy that gives motivation to customers to purchase goods on credit. However, if the strategy is not properly handled, it could result in business loss (Falope & Ajilore, 2009). In other words, WC debt is useable to purchase working capital assets like inventory, which is saleable. When inventory is sold, it becomes a source of revenue for the firm. This revenue is classified to evaluate a firm's profitability in the income statement. However, there are differing views about the use of financial ratios in the analysis of the studies. Smith and Begemann (1997) demonstrated that WC theories emphasize the firm's goals of profitability and liquidity. The problem of these shared goals is that when a firm lays too much emphasis on profitability, then the liquidity objective may suffer, likewise; the pursuit of liquidity could have an adverse effect on corporate returns (Webley, 2011). Falope and Ajilore (2009) study used data in a pooled regression to analyze cross-sectional observations of the firm's behaviors. In all 50 Nigerian non-financial firms, with a total of 694 firms, yearly observations were recorded in the period from 1996-2005. The study outcome concluded that a significantly negative relationship existed between net operating profitability and the average collection period, inventory turnover in days, average payment period, and cash conversion cycle for 50 firms listed on the Nigerian Stock Exchange. In the same direction, Jose, Lancaster and Stevens (1996) explored WC policies determinant and said there was no relationship between the cash conversion cycle and a firm's profitability.

It is clear that few studies on WC of firms exist in the United States; the studies methodologies had no consistency in tools used, and the outcome. A major inconsistency is in the use of different financial ratios. To sidetrack the inconsistency in the measurement of ratios, and bring a level of stability to working capital measurements, Nazir & Afza (2009) advocated the inclusion of total assets. Current assets of a firm cannot contribute to profitability by itself; it requires the support of long lived assets (Appuhami, 2008). Likewise, it is difficult to measure the impact of working capital financing policy without long-term liability. Most importantly, none of the existing WC study in the United States focuses on the impact of working capital on firms' profitability before, during, and after the great recession of 2008. This study is focused on these periods, and implications they would have on the firm's profitability.

The theory that ground this research demonstrates the basic concepts, strategies and policies of working capital management. This paper applied the working capital investment policy theory, which, Nazir and Afza (2009) defined as a ratio of total current assets to total assets. The same working capital theory was alluded to by Padachi (2006), Weinraub & Visscher (1998). Finance researchers are united on the components of a firm's working capital, and

these include, but are not limited to cash, inventories, account receivables, and prepaid expenses as current assets.

This paper is to test a hypothesis that aggressive WCIP or conservative WCIP is profitable under the recession with the small firms. The WCIP is defined as current asset$_{it}$ /total assets$_{it}$ following Padachi (2006) and Nazir and Afza (2009). The profitability is measured as return on assets (ROA) (Padachi ,2006) and Tobin's Q (Padachi, 2006; Nazir and Afza ,2009). In addition, this paper adds one more profitability of return on equity (ROE).

3. The Methodology and Model

The profitability test of WCIP is modeled as the following two multivariable panel regression equations.

(1) $\quad \text{ROA}_{it} = \alpha + \beta_1 \text{WCIP}_{it} + \beta_2 D_{Rt} \text{WCIP}_{it} + \beta_3 \text{Size}_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{Leverage}_{it} + \varepsilon_{it},$ [1]
(2) $\quad \text{ROE}_{it} = \alpha + \beta_1 \text{WCIP}_{it} + \beta_2 D_{Rt} \text{WCIP}_{it} + \beta_3 \text{Size}_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{Leverage}_{it} + \varepsilon_{it}$ [2]

Where,

ROA= Return on Assets for a ith firm in the tth year.
ROE= Return on Equity for a ith firm in the tth year.

$$\text{Working Capital Investment Policy}_{it} = \frac{\text{Current Asset}_{it}}{\text{Total Asset}_{it}}.$$

$D_R = 1$ if year > 2007, otherwise $D_R = 0$ as a recession dummy variable.
Size= Natural log of firms' size.
Growth = Growth rate of sales.

Leverage = Financial leverage percentage of firms=$\dfrac{\text{Liability}_{it}}{\text{Equity}_{it}}$

ε = Error term of the regression model
α = the working capital management intercept of the regression surface.
β_i = the responsiveness of profitability to the risk factor, independent and control variables ratio for i^{th} parameter.

The profitability model represents that the firm's Working Capital Investment Policy (WCIP) affects the firm's profitability depending on its size, growth rate and financial leverage. WCIP stipulates that when a firms' strategy supports the use of low investment in current assets, as against long-term assets, that investment policy is aggressive. On the other hand, conservative investment policy is when a firm allows for more capital in liquid assets. The aggressive / conservative investment policy approaches are strategies that enable the management to use funding in the most efficient manner. When a firm finances its working capital assets at the minimal level, it reduces the risk of overstocking, theft and the rising cost of sales. A firm that efficiently controls inventory, account receivable and cash, will have the opportunity to increase its profitability. In the case of the conservative approach, the expectation is the availability of abundant cash to meet working capital needs of the firm. The conservatives preach more liquidity for a firm, forgetting that money is useless if it cannot be used to create more

opportunity for growth and prosperity. Teruel and Solano (2005) argued that control variables like sales growth, size of the firm, and level of debt are integral factors that can ensure high profitability for a firm. Also, financial leverage is an indication of the extent to which a firm is using borrowed funds to acquire assets. Financial leverage is a motivating factor that stimulates a firm's purchasing power to acquire more assets than the stockholders are able to pay for through their own investment (Stice & Stice, 2011). Whether the aggressive or conservative WCIP are better off for a firm's profitability would be evaluated by the sign and significance level of β_1. A significant negative sign would support an aggressive strategy, and a significant positive sign would support a conservative one. The recession impacts of WCIP would be estimated by the sign and significance level of β_2. The interpretation of the sign of β_2 would be the same with β_1's interpretation. The others β_is are the marginal profit contributions from control variables of size, growth rate and leverage ratio. The firm's accumulated or expected profits are the most important information to evaluate firm's value. For the investigation, WCIP could be tested by Tobin's Q which is the ratio of firm's market value from the firm's book value as the following regression equation.

(3) $\text{TobinQ}_{it} = \alpha + \beta_1 \text{WCIP}_{it} + \beta_2 \text{D}_{Rt} \text{WCIP}_{it} + \beta_3 \text{Size}_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{Leverage}_{it} + \varepsilon_{it},$
      Where, TobinQ_{it}= Market value / Book Value of ith firm in the time of t.

The Firm's value model represents that firm's WCIP affects the firm's valuation depending on its size, growth rate and financial leverage. The interpretations of β_i are exactly same with the profitability model's ones.

4. Data

Small business is the focus of this study. Small businesses suffered exponentially from the great recession because when it happened many of them did not survive. The study applied a survey sampling method to analyze the impact of WC strategies on small business profitability. The study surveyed financial data of the participating firms. In 2011, the list of 100 best small companies was published by FORBES.com, a financial investment, and analyzing firm. The list rank small United States firms on the bases of their sales revenue, sales growth, earnings per share, and returns on equity. The sample firms were segmented into seven industrial groups in the United States economy. The number of firms in each industry range from five to twenty-seven. In all, the 100 firms that are surveyed served as a subset from the target population.

The 10-year study period from 2002 to 2011 is suitable because it relates to a decade of expansion and contraction in the United States economy (NBER, 2008, p. 1). For example, the first 6 years (2002-2007) are significant because they constituted a period of economic growth, whereas, the later 4 years (2008-2011) were recession years, when the United States economy witnessed financial crisis, high unemployment, and loss of household savings (Elwell, 2011). The target population consisted of small firms that are registered with the United States Securities and Exchange Commission (SEC). A total of 100 small firms (derived from Forbes.com database) represented the business category of small American companies' in this paper. These set of firms are in compliance with the registration and reporting criteria set by the SEC. This process surveyed financial data that is within the prescribed limits of the firm's distinguishing factors.

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Table 1 is the outcome of the descriptive statistics performed on a sample of 1,000 data sets of all the 100 participating firms over 10 years. The table shows single effect of profitability performances on different variables that was used for the purpose of this study. From the data sets, unrealistic, extreme data in Return on Asset (ROA), Return on Equity (ROE) and Tobin's Q were excluded so that only 967 data sets were included for the analysis.

The dependent variables as the firm's profitability were measured by accounting ROA and ROE, and firms' market performance was measured through Tobin's q ratios. The Return on Assets (ROA) is measured as net earnings after taxes divided by total assets. The Return of Equity (ROE) is measured as net earnings after tax divided by total equity values. The Tobin's q, is a market value test of a company's equity. Tobin's q ratio is calculated as Market value of firm (MVF) divided by Book Value of Assets (BVA). A firm's WCIP was measured through the financial ratio of Total Current Assets (CA) divided by Total Assets (TA). A company size was measured by the logarithm of its total assets. The growth rate is measured as the total sales growth rates, and leverage is measured as the total liability divided by equity values.

Table 1: Descriptive Statistics (extreme value excluded)

Variables	Obs	Mean	Std. Dev.	Min	Max
Current Assets[1]	967	166,962	188,381	1,404	1,374,505
Fixed Assets1	967	76,374	148,272	20	1,887,321
Total Assets[1]	967	340,592	402,304	1,472	2,946,767
Liability[1]	967	134,568	198,814	590	1,580,817
Net Income[1]	967	28,552	41,950	-108,858	333,000
ROA[2]	967	8.81	8.80	-38.74	52.30
ROE[2]	967	14.50	14.66	-62.81	106.48
WCI[2]	967	57.58	22.39	7.18	99.95
Tobin's Q	967	6.48	8.43	0.66	97.00
ln(Size)[3]	967	12.18	1.13	7.29	14.90
Growth Rate[2]	967	13.18	17.62	-62.45	99.88
Leverage Ratio[2]	967	63.94	45.49	2.61	601.91

1. Unit is $ thousands.
2. Unit is %.
3. The values are transformed into the natural log values of the total assets.

In all, the results show a positive ROA of 8.8%, ROE of 14.5% and Tobin's Q of 6.5 on the whole average, which means pretty positive profitability and high market values of the small business in the USA during the research periods. The WCI ratio of 57.6% on average was also very high enough, because those small firms are the best 100 small firms in the USA. But

leverage ratio of 64% was higher than the WCIP ratio. The average total asset size was $194.7 million as a natural log value of 12.18. The average sale was grown about 13.2% annually.

5. Results

5.1 Profitability (ROA, ROE) Impacts of WCIP

The profitability of WCIP on ROA, which is the estimated value of a parameter β_1 in equation (1) is significantly positive on all the models in Table 2. The hypothesis of a parameter β_1 is approved that the conservative WCIP is beneficial to profitability of the small firms in the USA. The conservative WCIP's profitability is consistent with Padachi (2006) and Nazir and Afza (2009). The 1% increase of WCIP may increase ROA around 0.00058% significantly in a simple regression without any company or time dummies in the 1st equation. Once years are controlled at the 2nd equation with year dummies, the marginal positive impact is increased to 0.000717%. In the 3rd panel multivariable regression, when both time and company dummy effects are controlled, the marginal WCIP impacts on ROA is increased more to 0.0011%. It means that a conservative WCIP is more effective when the year-constant and company-constant factors are controlled. That is, if the entire small firm is running at the year-constant and company-constant conditions, the conservative WCIP is more important than the other conditions. Lastly when the multivariate panel equation is controlled together with size, growth rate and leverage ratio, the WCIP marginal impact on ROA is slightly going down to 0.00076%. When the small firms are running at the same size, the same growth rates, and the same leverage ratio together with the year-constant, and company-constant conditions, the WCIP impacts would become smaller because of the negative size and leverage impacts and the positive sales growth rate impacts. All the control variable's impacts are significant. The 1% larger total asset reduces the ROA around 0.44%, and 1% higher leverage ratio reduces ROA around 0.00026%. But the 1% higher sales growth increases ROA around 0.0008%. Low R^2 of 46% indicates the need of the more control variables.

Table 2: Regression Analysis of the Effect of WCIP on ROA

Independent Variables	(1)	(2)	(3)	(4)
WCIP(%)	0.0575*** (4.46)	0.0717*** (5.71)	0.1089*** (4.70)	0.0756*** (3.24)
Ln(Size)				-0.4395*** (-6.12)
Growth Rate				0.0803*** (5.33)
Leverage Ratio				-0.0257*** (-3.03)
Company effect?	no	no	yes	yes
Time effect?	no	Yes	yes	yes
F-value	19.86	32.62	12.66	15.04
R^2	0.0199	0.0994	0.4211	0.4589
Adj- R^2	0.0189	0.0901	0.3485	0.3890

Note: 1. *, **, *** is 10%, 5%, 1% significant level respectively.
2. ( ) represents t-statistics.

The profitability of WCIP on ROE as a β_1 estimate on equations (2) is also significantly positive on all the models in Table 3 as like the ROA impacts in Table 2. The WCIP of ROE is also demanded to seek for a conservative strategy for the small firms. This ROE's conservative strategy is a unique contribution of this paper not found from the previous literatures. When the impacts of 1% WCIP increase on ROE are compared to the impacts on ROA, the simple regression impacts is 0.00074% compared to 0.00058% in the 1st equation. In the year dummy controlled 2nd equation, the coefficient is 0.093 which is higher to 0.072. Even in the 3rd and 4th equations, the higher marginal WCIP's impacts on ROE are found than on ROA. When all the control variables of size, growth rate and leverage ratio are controlled together with the time and company effects captured, the coefficient is 0.11. It means that the more conservative WCIP strategy is needed for the higher ROE than for the higher ROA. The control variable's impacts on ROE are in the same direction with the ROA impacts as the negative size and leverage marginal impacts and the positive total asset size impact. But contrary to the higher WCIP impacts on ROE than on ROA, the size and growth marginal impacts are almost half of the ROA's impacts. R^2 of 34% also indicates the need of the more control variables in the ROE impact model.

Table 3: Regression Analysis of the Effect of WCIP on ROE

Independent Variables	(1)	(2)	(3)	(4)
WCIP(%)	0.07431*** (3.49)	0.0925*** (4.41)	0.1393*** (3.40)	0.1067*** (2.58)
Ln(Size)	-		-	-0.2976*** (-3.63)
Growth Rate	-		-	0.0484*** (3.11)
Leverage Ratio	-		-	-0.0268** (-2.22)
Company effect?	no	no	yes	yes
Time effect?	no	yes	yes	yes
F-value	12.17	19.43	7.16	7.22
R^2	0.0123	0.0677	0.3212	0.3371
Adj- R^2	0.0113	0.0581	0.2362	0.2514

Note: 1. *, **, *** is 10%, 5%, 1% significant level respectively.
2. ( ) represents t-statistics.

5.2 Value (Tobin's Q) Impacts of WCIP

The value profitability of WCIP on Tobin's Q as an estimated value of β_1 in equation 3 is also significantly positive on all the models in Table 4. The same conservative WCIP will be needed for a higher Tobin's Q, which is also consistent with Nazir & Afza (2009). The 1% increase of WCIP may increase Tobin's Q around 2.8% significantly in a simple regression. The marginal impact of WCIP on Tobin's Q is going down to 2% increase in the 2nd equation, and in the 3rd equation it goes up to 3.5% after the time and company constant effects are controlled. However, when the total asset size, sales growth rate and leverage ratio are controlled, the marginal impacts of WCIP on Tobin's Q goes down to around 1%, which means close to a unit elasticity. The difference on the control variable impacts on Tobin's Q from the ROA or ROE is found at the positive marginal leverage impact rather than negative one. The more leverage promoted the higher market values during the periods. It sounds that the more loan ability of the small firms from financial institutions was understood as the higher creditability by the stockholders so that the market value could be enhanced. Leverage elasticity also shows a unit elasticity on Tobin's Q with close to 1. An absurd high marginal impact is shown at the total asset size impact, which 1% total asset size increase of a small firm might decrease Tobin's Q up to 34.5. It implements that the bigger small firms were more afflicted by the economic crisis during the periods. High R^2 of 85% indicates that the Tobin's Q variation is well explained by the WCIP's value impact equation.

Table 4: Effect of WCIP on Tobin's Q

Independent Variables	(1)	(2)	(3)	(4)
WCIP(%)	2.8058*** (5.40)	2.0073*** (4.18)	3.5481*** (5.70)	0.9845* (1.86)
Ln(Size)	-		-	-34.5482*** (-18.11)
Growth Rate	-		-	0.7380** (2.24)
Leverage Ratio	-		-	1.0397*** (4.06)
Company effect?	no	no	yes	yes
Time effect?	no	yes	yes	yes
F-value	29.21	17.44	89.38	133.58
R^2	0.0317	0.1937	0.7678	0.8458
Adj- R^2	0.0306	0..1846	0.7358	0.8239

Note: 1. *, **, *** is 10%, 5%, 1% significant level respectively.
2. ( ) represents t-statistics.

5.3 Recession Impacts of WCIP

For the recession impacts of WCIP, the interaction variable between WCIP and the great recession dummy representing from the year 2008 to the year 2011 is included in the WCIP impact model having only company fixed panel effects as showed in the Table 5. The year fixed effects cannot be treated due to the great recession dummy including the year dummies. The WCIP marginal profitability or valuation impacts before the recession are measured at the WCIP coefficients of β_1 in equations 1, 2 and 3, and the after- recession impacts are estimated by adding the interaction dummy*WCIP coefficients of β_2 in equations 1, 2 and 3 with the WCIP coefficients β_1. Contrary to the models without the recession interaction variable in Table 2 through Table 4, the model having a recession variable in Table 5 has several insignificant coefficients. Before the recession, the WCIP impacts on ROA and Tobin's Q as the β_1 estimates are significant, but the impact on ROE is not significant. A WCIP strategy of the small firms is important for the higher ROE and Tobin's Q significantly, but not on the ROE during the normal years. However, during or after a recession, a WCIP strategy of the small firms is important significantly on both profitability of ROA or ROE and Tobin's Q as shown in the β_2 estimates of equation 1, 2 and 3 in Table 5. The WCIP's marginal 1% impacts during or after the great recession on ROA, ROE and Tobin's Q are 0.0013%, 0.0008%[3] and 0.38%, which are calculated by adding the only significant β_1 and β_2. The WCIP impacts on ROA and ROE are increased during or after the recession, but the Tobin's Q's impact are reduced due to the significant sharp fall of the equity values in general. Therefore, during or after a recession, a conservative WCIP strategy is needed more by the small firms for the higher ROA and ROE, but on the other hand a less conservative WCIP strategy is requested for the higher Tobin's Q. Because during the recession, the equity values are tended to fall down no matter what strategy

is applied. On the dummy variable interacted with WCIP, Tobin's Q estimate is a significant negative, but when it is combined with WCIP estimates to measure the WCIP's impacts under the recession will be positive, but less positive than the normal impacts. An after-recession WCIP strategy is another unique contributions of this paper compared with the previous literatures.

Table 5: The Results before/after Recession

Independent/Dependent Variables	ROA	ROE	Tobin's Q
WCIP(%)	**0.0573**</br>(2.36)**	**0.0572**</br>(1.37)	**1.1432**</br>(2.14)**
Dummy WCIP	**0.0728***</br>(6.99)**	**0.0783***</br>(4.65)**	**-0.7622***</br>(-3.31)**
Ln(Size)	-0.0934</br>(-1.55)	-0.0645</br>(0.86)	-37.286***</br>(-24.87)
Growth Rate	0.0925***</br>(6.09)	0.0539***</br>(3.43)	0.0689*</br>(1.90)
Leverage Ratio	-0.0198**</br>(-2.26)	-0.1459</br>(-1.20)	1.0183</br>(25.11)
Company effect?	yes	Yes	Yes
F-value	23.14	8.31	342.09
R²	0.4143	0.2986	0.8431
Adj- R²	0.3447	0.2152	0.8226

Note: 1. *, **, *** is 10%, 5%, 1% significant level respectively.
     2. ( ) represents t-statistics.

6. Conclusions

This study was based on the survey done on best–small companies in the United States which was published by forbes.com in 2012. The method applied was with the use of ten years financial statements of small firms from the survey population. The WCIP strategy of the small firms in the USA was analyzed by using the multivariate panel regression model with the top 100 performing small firm's panel data from 2002 to 2011 to investigate the recession impacts on their profitability. Interestingly, the findings of this study were analytical from the recession impacts analysis on Table 5. It was concluded that the best performing small firms used a conservative WCIP during the normal years and used a more conservative strategy during or after the recession for the higher Profitability of ROA and ROE, but a less conservative for the higher market valuation of Tobin's Q. Our findings of a conservative WCIP for a higher profitability are consistent with Padachi (2006) and Nazi and Afza (2009) and move further to analyze the WCIP strategies under or after a recession. At a time of recession the small firms will be benefitted with conservative investment policy strategies in order to be profitable for the higher ROA, ROE and even Tobin's Q. However, this conclusion may be tougher for the higher Tobin's Q during the recession when the equity values fall no matter what WCIP strategies are applied.

This paper's limitation is within the top 100 small firms rather than a sample from a population of the small firms. A better representative sample data is needed for a general analysis of the small firms. The working capital strategies of firm managers differ from company to company, and there is no superiority in policy applications. Efficient management of a working capital portfolio that avoids waste, improves planning, and effective internal controls will have a positive impact on both corporate assets and profitability of small firms. More studies on WCIP are inevitable in business, if small firms considered to be the bone of economic growth will continue to occupy its pride of place in the development of the nation's economy. This study promotes scholarly contributions in accounting and finance education and also, provides gainful knowledge among corporate executives and financial managers that struggles with management of assets in a period of recession. Further, this study is significant because of the importance of small businesses in the economy of the country. This study significance cannot be over emphasized due to the importance of small business sector in the US economy. However, this sector is riddled with associated risks like poor planning, lack/inadequate funding, uneasy access to capital, poor training in financial management, and inability to identify the right mix of funding needs

Endnotes

1. The simultaneous causality may be wondered due to a positive relationship between profitability and cash assets. But our variable considered is a WCIP as a ratio of current assets and total assets, which includes cash accounts together with inventory and account receivables. Therefore the endogeneity problem could be ignored in this analysis as with Padachi (2006) and Nazir and Afza (2009).
2. Lagged profitability ratios were considered in the model, but it was not significant and was not included in the model as like Padachi (2006) and Nazir and Afza (2009).
3. An estimate of β_2, 0.08, is not summed with an estimate of β_1, 0.0572% which is not statistically significant.

References

Appuhami, BAR 2008, 'The Impact of Firm's Capital Expenditure on Working Capital Management: An Empirical Study across Industries in Thailand', *International Management Review,* vol. 4, no. 1, pp. 8-21.

Arieff, A, Weiss, MA & Jones, VC 2010, *The Global Economic Crisis: Impact on Sub-Saharan Africa and Global Policy responses*, CRS Report for Congress, Congressional Research Service.

Brigham, EF & Ehrhardt, MC 2008. *Financial Management Theory and Practice (12th ed.),* Mason OH, Thomson South-western.

Elwell, CK 2011, *Economic Recovery: Sustaining U. S. Economic Growth in a Post-Crisis Economy.* , CRS Report for Congress, Congressional Research Service.

Falope, OI & Ajilore, OT 2009, 'Working Capital Management on Profitability Performance in Nigerian Corporations', *Research Journal of Business Management*, vol. 3, no. 3, pp. 73-84.

Filbeck, G & Krueger, TM 2005, 'An Analysis of Working Capital Management Results Across Industries', *Mid-American Journal of Business*, vol. 20, no. 2, pp. 11-18.

Filbeck, G, Krueger, T & Preece, D 2000, 'CFO magazine's working capital survey. Do Selected Firms Work for Shareholders?', *Quarterly Journal of Business and Economics,* vol. 46, no. 2, pp. 3-22.

Jose, ML, Lancaster, C & Stevens, JL 1996, 'Corporate Returns and Cash Conversion cycle', *Journal of Economics and Finance*, vol. 20, no. 1, pp. 33-46.

Nazir, M. S., &Afza, T. 2009. *Impact of Aggressive Working Capital Management Policy on Firm's Profitability. The IUP Journal of Applied Finance*, 15 (8), 19-30.

Padachi, K 2006, 'Trends in Working Capital Management and its Impact on Firm's Performance: An analysis of Mauritian Small Manufacturing Firms', *International Review of Business Research Papers*, vol. 2, no. 2, pp. 45-58.

Smith, MB & Begemann, E 1997, 'Measuring Association between Working Capital and Return on investment', *South Africa Journal of Business Management*, vol. 28, no. 1, pp. 1-5.

Stice, EK & Stice, JD 2008, *Intermediate Accounting (18th ed.)*, Mason, OH, South-Western Centgage Learning.

Stickney, CP & Weil, RL 2008 *Financial Accounting: An Introduction to Concepts, Methods and Uses,* Mason, OH, South-Western Centgage Learning.

Teruel, PJG & Solano, PM 2005 'Effects of working capital management on SME Profitability', *International Journal of Managerial Finance*, vol. 3, no. 2, pp. 164-177.

Webley, C 2011,*Cash Management, Liquidity, and Longevity of Family-owned Restaurants,* Dissertation, Walden University.

Weinraub, HJ & Visscher, S 1998 'Industry Practice Relating to Aggressive Conservative Working Capital Policies', *Journal of Financial and Strategic Decision*, vol. 11, no. 2, pp. 11-18.