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Managing working capital efficiency in Turkish agribusinesses and the impact of globalization: insights from an emerging market

RESEARCH ARTICLE

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Abstract

The efficiency of working capital is a major determinant of firm profitability. So, the grasp of working capital dynamics is extremely important for managers, but also for policy makers, since inefficient working capital management is an important source of industrial sickness. This study focuses on the profitability impacts of working capital policies of Turkish agribusinesses, and aims to investigate the potential effects of globalization on these interrelated relationships. The findings obtained from pooled panel analyses demonstrate that Turkish agribusinesses can enhance their profitability and value by adopting a conservative working capital policy through lengthening the cash conversion cycle up to an optimal level. Besides, globalization is found to deteriorate their efficiency and profitability where economic globalization seems to have the highest impact raising questions on the effectiveness of Turkish agribusinesses in coping with competition. Thus, both the managers and the policy makers should concern with the competitiveness impacts of globalization.

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1. Introduction

Working capital refers to a firm's investment in short-term assets, i.e. current assets. However, its management incorporates not only the amount of the needed working capital and the distribution of the items comprising it but also the financial resources and the terms of funding to cover them. Thus, decisions relating to working capital involve managing relationships between a firm's short-term assets and liabilities to ensure a firm is able to continue its operations, and have sufficient cash flows to satisfy both maturing short-term debts and upcoming operational expenses at minimal cost, thereby increasing corporate profitability (Barine, 2012) and creating shareholder value. However, in working capital management (WCM) content, there exists a highly interrelated relationship among liquidity, risk and profitability. A firm can improve its profitability by investing its funds in revenue generating activities instead of liquid assets such as cash and cash equivalents, accounts receivables and inventories etc. But, holding insufficient levels of liquid assets will increase the risk associated with the possibility of failing to meet short term obligations, facing stock outs and encountering interruptions in production process. Contrarily, high level of current assets may reduce the risk of liquidity associated with the opportunity cost of funds that may have been invested in long-term assets (Nazir and Afza, 2009). That is, holding too much liquidity will work to reduce the risk at the cost of decreased profitability where an efficient WCM should account for both; if profit is ignored, the firm cannot survive in the long run while if liquidity is neglected, it may face the problem of insolvency. Indeed, this trade-off between profitability and risk is the key to WCM (Dash and Hanuman, 2009) which is thus aimed at maintaining a balance between liquidity and profitability while conducting the day-to-day operations of a business (Falope and Ajilore, 2009). In this respect, business success is argued to heavily depend on the ability of financial managers to effectively manage the working capital components of receivables, inventory, and payables (Filbeck and Krueger, 2005) as they compose the main portion of short term accounts, represent the areas of a business where managers have the most direct impact and are highly relevant to efficiency.

Efficiency of WCM is traditionally based on the principle of speeding up collections and inventory turnover, and slowing down disbursements. However, reducing the average collection and reducing the days in inventory periods may cause the loss of good credit customers, and increase the shortage cost, respectively, while lengthening the average payback period may damage the firm's credit reputation and harm its profitability in the long run (Nobanee and AlHajjar, 2009). Alternatively, delays in cash receipts of receivables that could be used in financing investments or paying debts will deteriorate firm's cash management. Overinvestment in inventories will needlessly tie up the cash that could be invested in revenue generating activities or cutting prices too much to increase sales and to move out inventory may deteriorate profitability while lagging payables will improve firm's operations through enabling the use of available funds for longer periods – probably unless there exists an early payment discount option. Besides, through granting trade credit to customers, a firm may increase its sales that may translate into higher stock turnover which may in turn cause cash flow problems as receivable days get longer (Ukaegbu, 2014) and having insufficient funds to pay for the short term liabilities will increase firm's default risk and may even result in bankruptcy while holding too much liquidity will work to reduce risks at the cost of decreased profitability (Karadagli, 2013). So, in broadly speaking, it is possible to talk about two mutually exclusive and conflicting WCM policies (WCP): (1) a firm may adopt an aggressive WCP through holding a low level of current assets as a percentage of total assets and/or a high level of current liabilities as a percentage of total liabilities (Nazir and Afza, 2009); and (2) a conservative WCP otherwise. However, a total approach should be followed which covers all the activities of the company relating to vendors, customers and products (Hall, 2002). In this respect, cash conversion cycle (CCC), which refers to the interval between the firm's payment for its raw materials and the collection of payment from the customer (Brealey *et al.*, 2017), is at the core of WCM. Through combining the effective measures of the most important three components of working capital, namely the accounts receivables, inventories and accounts payables, provides a highly comprehensive measure of WCM efficiency. In line with the views on WCM, an aggressive WCP is associated with a shorter CCC while a conservative WCP is associated with a longer CCC. Thus, traditionally it is argued that a shorter CCC enhances profitability through improving the efficiency of WCM (Nobanee and AlHajjar, 2009) while a longer CCC, through blocking the funds in working capital for a longer time, will deteriorate the profitability (Deloof, 2003).

Actually, a shorter CCC is associated with high opportunity cost while a longer CCC is associated with high carrying cost (Nobanee, 2010). In fact, corporate profitability might decrease with CCC if the costs of higher investment in working capital rise faster than the benefits of holding more inventories and/or granting more trade credit to customers (Deloof, 2003), and vice versa.

The efficiency of WCM is vital for all businesses due to several reasons. First of all, as already mentioned, it has a direct impact on liquidity and profitability. Besides, current assets account for a significant portion of a firm's total assets and its management not only occupies a major portion of a financial manager's attention and time but also composes one of the most influential key factors for firm performance. In fact, most businesses fail, especially in economic recessions, mainly as a result of failure to meet their working capital requirements (Deloof, 2003). Empirical results show that ineffective management of working capital is one of the important factors causing industrial sickness (Yadav, 1986). Moreover, although the corporate finance literature has traditionally focused on the study of long-term financial decisions, efficient management of working capital is a fundamental part of the overall corporate strategy (Nazir and Afza, 2009). Long-term investment and financing decisions will not yield their expected benefits for a company unless short-term decisions regarding current assets and liabilities are also taken into consideration (Watson and Head, 2007). Besides, an efficient WCM is more critical for emerging market firms for several reasons. First of all, emerging market firms are comparatively smaller and have relatively limited access to capital markets, and liquidity burden is among the most pronounced obstacles faced by them (Karadagli, 2012). Moreover, working capital decisions are more sensitive to unexpected variations in financial markets where an efficient financial market helps to correct deviations from optimal working capital policies (Etiennot *et al.* 2011). Thus, since emerging economies are usually characterized with less efficient financial markets as opposed to developed economies, WCM is more critical for both firm performance and survival in emerging markets. Additionally, as competition erodes prices and lower margins with an ever-increasing call to invest in new products and technologies coupled with a higher need of fund to expand both internally and overseas as well as to pay for debts, the attention has shifted to WCM as a source of internal finance (Too *et al.*, 2016), leading efficient and effective WCM to become a true competitive advantage (Ching *et al.* 2011). But unfortunately, WCM is probably one of the most fundamental and least studied aspects of corporate finance (Kaur and Singh, 2013).

The review of past empirical research report mixed findings with regard to WCP and profitability. The majority of them, in line with the traditional view, suggests an inverse relationship between CCC and profitability, promoting aggressive WCP (among others Deloof, 2003; Falope and Ajilore, 2009; Karadagli, 2013; Nobanee and AlHajjar, 2009; Öner, 2016; Ukaegbu, 2014). However, studies reporting a positive relationship and thus promoting conservative WCP (among others Çakır, 2013; Lyroudi and Lazaridis, 2000; Mwangi *et al.*, 2014; Nazir and Afza, 2009) are not exceptional as well. Among the relatively limited past empirical research, only a very few focus on agribusiness sector. Thus, given the well-defined industrial differences (Akdoğan, 2018; Etiennot *et al.*, 2011; Filbeck and Kruger, 2005; Yeboah and Agyei, 2012) and the dearth of past empirical research, actually almost nothing is known about this relationship for agribusinesses since this sector is almost neglected in literature. Among the handful research that focuses on the agribusiness sector Bieniasz and Golas (2011) found that there exists an inverse relationship between CCC and firm profitability as measured by return on assets for Polish food industry enterprises and thus provides support for aggressive WCP. Lyroudi and Lazaridis (2000) report a positive relationship between CCC and return on assets as well as between CCC and net profit margin for Greek food and beverage firms, thus providing support for conservative WCP. The findings of Ademola (2014), though not statistically significant at conventional levels, point to a positive relationship between CCC and net operating profit for Nigerian food and beverage manufacturing firms.

In view of the aforementioned arguments, the first aim of this study was to examine the profitability effects of CCC and to determine whether aggressive or conservative WCP is promising for Turkish agribusinesses. Next, since globalization not only fosters import competition along with export and foreign investment opportunities, but also increases global production sharing, outsourcing and intermediate good trading on

one hand, and alters consumer preferences and consumption patterns on the other, it forces firms to adjust their operations which in turn will impose changes in their working capital. At the same time, globalization enables new financing opportunities for firms with access to international markets. Besides, through its impacts on competition, globalization will affect the negotiation power of firms. However, both the competition and the risks associated with trade and financial liberalization will increase with globalization and exposure to trade will force less productive firms to shrink or exit while market shares will be reallocated towards more productive firms through trade liberalization, altering the market structure. Standard heterogeneous firm trade theories suggest that the response of a firm to globalization depends on its initial productivity which not only has a positive correlation with firm size but also determines a firm's initial exporting status as well (Hahn and Narjoko, 2014). Thus, although globalization potentially affects the operations of firms, their working capital flows and performances, since it acts as a two-edged sword, its impact on firms is ambiguous as it can be both beneficial and detrimental to businesses where the direction of this impact will also reflect the competitiveness of the sector and the ability of firms in coping with competition. Considering that the process of globalization exponentially continues to affect business environments globally through transforming the supply and demand conditions and accelerating the competition, the potential effects of globalization on the interrelated relationships among WCM, profitability and firm value will also be searched for. To the best of our knowledge, there is only one study that questions such a relationship through addressing the impact of globalization on the operational efficiency of emerging market firms. For a multi-industry sample of firms, Akdoğan (2018) reports that globalization not only significantly deteriorates the operating income but also lengthens the CCC of Turkish firms, and points to significant industrial differences.

2. Data and methods

This research is designed to examine the impacts of working capital practices and policies on the financial performance of Turkish agribusinesses, and to investigate the effects of globalization in the Turkish market. For that purpose, first the profitability impacts of WCP are searched for to determine whether aggressive or conservative WCP enhances the financial performances of Turkish agribusinesses. Then, the impacts of globalization on these interrelated relationships are searched for through concentrating not only on the overall globalization but also on its single dimensions, specifically the economic, the social and the political dimensions of globalization separately with the aim of getting a more comprehensive grasp on the efficiency and profitability effects of globalization and determining whether different dimensions of globalization have differing impacts.

The research is conducted by using pooled panel analysis with quarterly data via Eviews9 software. The sample consists of all the publicly traded food and beverage firms listed in Borsa Istanbul that are continuously being traded with no major missing data during the research period of 2013:Q1-2015:Q4 and finally covers 24 firms out of 28 which makes 288 observations in total. Although the length of data covered in the empirical analyses and the research sample size constitutes a limitation, unavailability of data, unfortunately, constraints the research period of this study: enlarging the research period backward causes the sample size to decrease further while enlarging the research period forward is not possible since the latest available globalization data belong to 2015.

In order to determine whether aggressive or conservative WCP is promising for Turkish agribusinesses, we focus on a highly comprehensive measure, CCC which is the dominant theoretical framework to explain the association between WCM, WCP, and firm profitability (Talonpoika *et al.*, 2014; Yazdanfar and Öhman, 2014). CCC can simply be calculated by subtracting the average payback period from the sum of the average collection period and days in inventory:

$$CCC = ACP + DiI - APP \quad (1)$$

where
ACP (average collection period) = accounts receivable × 365/sales;
DiI (days in inventory) = inventory × 365/cost of goods sold;
APP (accounts payback period) = accounts payable × 365/cost of goods sold.

As a proxy for firm profitability both accounting and market-based performance measures are used, specifically the percentages change in net income (NI) and Tobin's q (Tq), respectively. Tq compares the value of a company assessed by financial markets (market value) with the value of a company's assets (book value) and is a widely used measure of profitability, performance and value. Additionally, firm size, financial leverage and gross domestic product (GDP) growth rate are used as control variables along with a dummy variable to control for the seasonal effects (Ds). Firm size is measured by the natural logarithm of total assets. As a proxy for financial leverage, debt ratio is used which is calculated by dividing the sum of short and long term financial debt to total assets [=(short term borrowing + long term borrowing) / total assets], and GDP growth rate is used to control the economic conjuncture. Turkish globalization indices are obtained from KOF Index of Globalization which was developed by Dreher (2006), updated by Dreher *et al.* (2008) and provided by the Swiss Federal Institute of Technology in Zurich. But since those indices are constructed on annual basis, they are converted into a quarterly dataset with Cubic Spline Interpolation by using Matlab. The definitions of the variables used in the study are presented in Table 1.

Table 2 shows that the GDPgr has a mean, median and standard deviation of 1.6, 1.6 and 1.05, respectively. The mean and the median of financial leverage are found to be 0.3 and 0.1, respectively, and has a standard deviation of 2.65 while for size the mean, median and the standard deviation of the observations are observed to be 5.4, 5.1 and 1.79, respectively. As depicted in Table 2, the mean and the median values for CCC are observed to be 104.9 and 91.9 days, respectively, with a standard deviation of 71.2. This indicates that it takes approximately 3.5 months on average for a firm to collect back the cash going out initially to pay for the payables arising from the purchase of the inventories as the receipt from the sale of the related manufactured product. Besides, it is also observed that it takes approximately 3 months for an average firm to complete this cycle.

The high standard deviation is probably a reflection of the fact that some firms in the sample face considerable production-consumption mismatches seasonally. Tq has a mean of 8.1, a median of 1.2 and a standard deviation of 19.5 while NI has a mean of 1.4, a median of -0.1 and a standard deviation of 18.6. The mean,

Table 1. Definitions of variables.[1]

Abbreviations	Descriptions	Explanations
CCC	cash conversion cycle	= ACP + DiI – APP
FL	financial leverage	= (short term borrowing + long term borrowing) / total assets
S	size	= natural logarithm of total assets
GDPgr	gross domestic product growth rate	quarterly real GDP growth rate
GL	globalization	KOF globalization index
EG	economic globalization	KOF[1] index of economic globalization
SG	social globalization	KOF index of social globalization
PG	political globalization	KOF index of political globalization
Tq	Tobin's q	market value/book value
NI	net income	= % change in net income
Ds	seasonal dummy	D2: 1 in the 2nd quarter; 0 in the others. D3: 1 in the 3rd quarter; 0 in the others. D4: 1 in the 4th quarter; 0 in the others.

[1] ACP: average collection period; DiI: days in inventory; APP: accounts payback period; KOF: Konjunkturforschungsstelle.

Table 2. Descriptive statistics per variable.

Variables	Description of variables	Sample size	Mean	Median	Max	Min	Stddev	Skew	Kurtos.	Jar.-Bera
GDPgr	gross domestic product growth rate[1]	12×2=288	1.6	1.6	3.6	-0.8	1.05	-0.25	3.49	5.9
FL	financial leverage	12×2=288	0.3	0.1	45.2	0.02	2.65	16.82	285.01	9,713.3
S	size	12×2=288	5.4	5.1	10.1	2.5	1.79	0.75	3.04	27.4
CCC	cash conversion cycle[2]	12×2=288 (252)	104.9	91.9	294.9	12.1	71.2	0.67	2.6	19.45
Tq	Tobin's q[2]	12×2=288 (252)	8.1	1.2	96.2	0.48	19.5	3.01	11.06	1,033.9
NI	net income	12×2=288	1.4	-0.1	298.7	-2.8	18.6	14.89	233.34	6,473.4
GL	globalization[1]	12×2=288	70.6	70.6	71.8	69.5	0.85	0.12	1.41	31.0
EG	economic globalization[1]	12×2=288	52.6	52.4	54.7	50.8	1.45	0.26	1.52	29.6
SG	social globalization[1]	12×2=288	65.5	65.5	67.3	63.7	1.36	-0.06	1.38	31.8
PG	political globalization[1]	12×2=288	93.7	93.7	94.0	93.3	0.25	-0.17	1.40	32.0

[1] Since there is only one data set for those variables for the 12 quarters, the sample size is provided through multiplying the number of quarters with the number of the firms.

[2] After eliminating the outliers within the Tq and CCC data, the remaining sample sizes are given in parenthesis.

median and the standard deviation of GL are found to be 70.6, 70.6 and 0.85, respectively. As the dimensions of GL is considered, PG is observed to have the highest globalization level with lowest standard deviation while EG is observed to have the lowest globalization level with the highest standard deviation.

All the relevant firm data is extracted from Bloomberg and GDP growth rate is sourced from the OECD database. Then, the data is checked by using robustness tests which are reported to be structurally valid. Finally, the below model is constructed and applied for both profitability measures.

$$Y_{i,t} = \beta_1 CCC_{i,t} + \beta_2 S_{i,t} + \beta_3 FL_{i,t} + \beta_4 GDPgr_t + \beta_5 Ds + \varepsilon \quad (2)$$

where Y, S, FL, GDPgr and Ds denote the profitability measure (NI and Tq), firm size, financial leverage, GDP growth rate and seasonal dummy, respectively.

Next, to search for the impacts of globalization on WCM efficiency and on firm profitability, the below models are used by accounting for not only the overall globalization level but also for its single dimensions of economic, political and social globalization levels separately by using the two models below:

$$CCC_{i,t} = \beta_1 G_{i,t} + \beta_2 S_{i,t} + \beta_3 FL_{i,t} + \beta_4 GDPgr_t + \beta_5 Ds + \varepsilon \quad (3)$$

$$Y_{i,t} = \beta_1 G_{i,t} + \beta_2 S_{i,t} + \beta_3 FL_{i,t} + \beta_4 GDPgr_t + \beta_5 CCC + \beta_6 Ds + \varepsilon \quad (4)$$

where Y denotes the profitability measures and G represents the globalization indices.

In the study, first the multicollinearity problem is checked. In order to investigate the existence of the multicollinearity problem, the relationship between R^2 and explanatory variable coefficient's *t*-tests are examined. The *t*-test of the explanatory variable coefficients indicate that all or most of the coefficients are meaningless. However, if the R^2 value is high (for example greater than 0.8) while the F-test results point to the rejection of the null hypothesis $R^2 = 0$, then there is a contradiction between *t*-test and R^2 where this contradiction creates the problem of multicollinearity (Gujarati, 2003). As a result of the investigations, there

is no such problem in the models. Then, identification tests were performed for each model before the model interpretations. White heteroscedasticity test for variance problems, Jarque-Bera normality test for normal distribution of error terms, Lagrange Multiplier-LM test for autocorrelation were performed. Based on the results of the tests, it is concluded that there was no problem of variance in the models, the error terms were normally distributed and there was no problem of autocorrelation.

3. Results and discussion

The results obtained from the pooled panel analysis for the profitability effects of WCPs which will also enable us to determine whether aggressive or conservative WCP is promising for Turkish agribusinesses, are provided in Table 3.

The findings of Model 1 and 2 indicate that the profitability of Turkish agribusinesses in terms of both accounting- and market-based performance measures, specifically in terms of net income and Tobin's q, improves as the CCC lengthens at 10% and 1% significance levels, respectively. Since the higher the investment in working capital, the longer the CCC, these results indicate that Turkish agribusinesses can increase their profitability and value by adopting a conservative WCP. For that purpose, they can increase their average collection period and/or days in inventory and/or decrease their average payback period. These findings, contradictory to the traditional view which is based on the argument that firms can enhance their profitability by speeding up collections and postponing disbursements, provide support for the view that higher investment in inventories and receivables might translate into higher sales fostering profitability. In fact, as argued before, it is possible to observe a positive relationship between CCC and profitability if the benefits of holding more inventories and/or granting more trade credit to customers rise faster than the costs of higher investment in working capital. Thus, in Turkish agribusinesses to lower the liquidity risk through investing more in working capital and accordingly have a longer CCC which is associated with high carrying cost seems to be more appropriate as oppose to a shorter CCC which is associated with high opportunity cost.

Contrary to the findings of Bieniasz and Golas (2011) that focus on Polish food and beverage firms, our results provide support for the findings of Lyroudi and Lazaridis (2000) for Greek food and beverage firms. This is interesting in the sense that Greece and Turkey are neighboring countries located at the cross coasts of the Aegean Sea with similar climate and agricultural characteristics while Poland is a transition economy located in central Europe. Besides the two Aegean countries of Turkey and Greece are quite vulnerable to frequented economic volatilities, relatively higher inflation rates and unstable sales which may translate into

Table 3. Profitability effects of working capital management policies.[1,2,3]

	Model 1 (NI)	**Model 2 (Tq)**
CCC	0.0034* (1.7403)	6.1136*** (12.923)
Size	0.12 (0.2758)	57.8614** (0.7443)
Financial Leverage	-0.0315 (-0.0765)	-5.1001 (-0.2065)
GDP growth rate	1.2842 (1.3081)	-259.67*** (-4.2928)
Ds	-1.8446** (-1.9955)	-126.49** (-2.2099)
R-squared	0.34711	0.570840
Adjusted R-squared	0.33268	0.562792
Mean dependent var	9.74994	377.7875
Akaike info criterion	9.64941	16.88454
Schwarz criterion	9.73002	16.95153
Hannan-Quinn criterion	9.68179	16.91145

[1] NI: net income, Tq: Tobin's q, CCC: cash conversion cycle, Ds: seasonal dummy.

[2] *t*-statistics are presented in parentheses.

[3] *P*-values: <0.01***, <0.05**, <0.1*.

higher payoffs to adopting a conservative WCP. Thus, future research should focus on country effects as well as on geographical aspects in addition to industrial differences. Considering that both Lyroudi and Lazaridis (2000) and Bieniasz and Golas (2011) focus only on accounting-based profitability measures by using annual data while we question both accounting- and market-based profitability measures through quarterly data, our findings also enable us to draw inferences for the market's valuation which can be regarded as a distinguishing feature of this study. As the findings obtained for both profitability measures are consistent with each other, it can be concluded that managers of Turkish agribusinesses can create a positive value by lengthening the CCC up to an optimal level.

Next, to search for how globalization affects the profitability and WCM efficiency of Turkish agribusinesses, we first concentrate on the impacts of overall globalization level and then to be able to get a deeper insight, we focus on its single dimensions. The results obtained for the overall globalization level are summarized in Table 4.

The results summarized in Table 4 suggest that as Turkey gets more globalized, the CCC of Turkish agribusiness companies shortens at a 1% significance level, indicating that their WCPs get more aggressive or, alternatively, less conservative. However, remembering that Turkish agribusinesses can enhance profitability and value by adopting a conservative WCP as signified by the results of Models 1 and 2, this finding can be interpreted as a worsening in the WCM efficiency. Robust with this interpretation, the findings on the profitability impacts of globalization also report a corresponding decrease in both net income and Tobin's q as globalization increases with 10% and 1% significance levels, respectively. These results reveal that globalization actually deteriorates the WCM efficiency of Turkish agribusiness firms with an accompanying decrease in profitability and value. The observed deterioration in the efficiency of WCM and the reduction in their profitability with globalization actually raise questions on the competitiveness of Turkish agribusinesses and on their effectiveness in coping with increasing competition. Thus, given the crucial importance of this industry for the whole economy, government policies should also take this fact into account and develop strategies to enhance the competitiveness of Turkish agribusinesses.

These findings are consistent with the finding of Akdoğan (2018) that reports a significant deterioration in profitability as measured by operating income. However, contradictory results are obtained for CCC; while Akdoğan (2018) report a lengthening in CCC with globalization, the findings of this study suggest a shortening. But considering that the findings of both studies point to a decrease in the employed profitability

Table 4. Profitability and efficiency impacts of globalization.[1,2,3]

	Model 3 (CCC)	Model 4 (NI)	Model 5 (Tq)
Globalization	-3.6891*** (-6.1987)	-0.1141* (-1.7892)	-30.7214*** (-8.5628)
Size	78.6527*** (11.3031)	1.2067* (1.9173)	350.5597*** (8.6409)
Financial Leverage	0.5162 (0.1126)	-0.0148 (-0.0371)	-0.6183 (-0.0285)
GDP growth rate	7.7043 (0.6407)	1.9619* (1.8713)	-77.0919 (-1.3523)
CCC		0.0127* (1.6537)	5.9246*** (14.2322)
Ds	-1.1788 (-0.1044)	-1.2511 (-1.2731)	33.3497 (0.6241)
R-squared	0.646858	0.514534	0.592893
Adjusted R-squared	0.629557	0.457420	0.585124
Mean dependent var	120.3527	9.744994	377.7875
Akaike info criterion	11.20468	9.382876	16.62979
Schwarz criterion	11.58088	9.772503	16.71018
Hannan-Quinn criterion	11.35581	9.539387	16.66208

[1] CCC: cash conversion cycle, NI: net income, Tq: Tobin's q, GDP: gross domestic product Ds: seasonal dummy.

[2] *t*-statistics are presented in parentheses.

[3] *P*-values: <0.01***, <0.05**, <0.1*.

measures with deepening globalization, and remembering that the findings of Akdoğan also report significant industrial differences for the components of CCC, specifically for DiI, APP and cost of goods sold, the contradictory results obtained for CCC may provide a partial support to Akdoğan's argument that 'the results may change considerably among sectors (Akdoğan 2018)' which, based on the results of both studies jointly, seem to be the case for agribusinesses. The conflicting results obtained for CCC can arise from relatively low productivity levels of Turkish agribusinesses and/or their relatively small sizes on global scale which put them at a disadvantageous position in adjusting for the various dimensions of globalization process, especially with regard to increased import competition, export and foreign investment opportunities as well as global production sharing. Besides, although Turkey is a net exporter in agricultural products, unlike various other sectors such as manufacturing, communications, defense and transportation, the country suffers from not hosting internationally well-known Turkish agribusinesses or globally famous brands which may not only push further the above mentioned detrimental effects but also will raise questions on their adoption ability to changing supply and demand conditions, and on the efficient use of international financial markets. Besides, since all these possibilities can also potentially hamper the competitive position of firms, globalization may result in deteriorated negotiation power of Turkish agribusinesses resulting in a shorter CCC. Moreover, as agribusiness sector is highly competitive compared to most other sectors (Bashimov, 2017), the impacts of globalization will probably be stronger for agribusinesses. This, once again pinpoints to the necessity of accounting for possible industrial differences in future research. However, it should also be noted that since Akdoğan investigates the impact of globalization on operating income, CCC and their components for a sample of firms from various sectors by using annual data for the period of 2001-2010 particularly focusing on the potential differences that may arise between SMEs and large companies, these two studies differ considerably through scope, aim, methodology, research period, etc., necessitating more empirical evidence and thus further research to draw inferences. Besides, it may also worth mentioning that since in the study of Akdoğan no attention has been diverted to the single dimensions of globalization which will also enable to survey whether different dimensions of globalization have differing impacts, searching for the effects of economic, social and political globalizations separately through quarterly data constitutes a unique feature of this study.

The results obtained for economic dimensions of globalization are provided in Table 5. As can be observed from this table, economic globalization is found to have a significant negative effect on both the efficiency and the profitability of Turkish agribusinesses. As the economic globalization of Turkey increases, the CCC of Turkish agribusinesses shortens at a 1% significance level, and their net income and Tobin's q

Table 5. Profitability and efficiency impacts of economic globalization.[1,2,3]

	Model 6 (CCC)	Model 7 (NI)	Model 8 (Tq)
Economic Globalization	-4.9352*** (-5.4597)	-0.1543* (-1.8107)	-40.5477*** (-8.7135)
Size	78.5425*** (11.3109)	1.2164* (1.9337)	345.9081*** (8.5097)
Financial Leverage	0.5057 (0.1103)	-0.0149 (-0.0374)	-0.7562 (0.0347)
GDP growth rate	7.5758 (0.6304)	1.9667* (1.8772)	-80.3491 (-1.4049)
CCC		0.0126* (1.9476)	5.9169*** (14.1571)
Ds	-1.2921 (-0.1145)	-1.2486 (-1.2717)	30.0861 (0.5013)
R-squared	0.646459	0.514068	0.589732
Adjusted R-squared	0.629113	0.456899	0.581903
Mean dependent var	120.3527	9.744944	377.7875
Akaike info criterion	11.20728	9.383836	16.63752
Schwarz criterion	11.58347	9.773462	16.71792
Hannan-Quinn criter.	11.35841	9.540346	16.66981

[1] CCC: cash conversion cycle, NI: net income, Tq: Tobin's q, GDP: gross domestic product Ds: seasonal dummy.

[2] *t*-statistics are presented in parentheses.

[3] *P*-values: <0.01***, <0.05**, <0.1*.

decrease at a 10% and 1% significance level, respectively. Thus, parallel to the obtained results for the overall globalization level, the findings for the economic globalization also point to deteriorations in WCM efficiency, profitability and firm value.

The impacts of social globalization are provided in Table 6. The findings indicate that as social globalization degree of Turkey increases, the CCC of Turkish agribusinesses shortens with a significance level of 1%. The accounting based performance measure of net income is found to decrease at 10% significance level and the market based performance measure of Tobin's q is found to decrease significantly with 1% significance level. These results once again signify a negative impact, leading us to conclude that social globalization will not help in improving the profitability and efficiency as well. Since social globalization enables the diffusion of life styles, attitudes, ideas and thus commodities, it can be sensible to expect it to create a cultural familiarity and convergence, and considering that food is the oldest global transmitter of culture, our results may turn out to be a little surprising as food and beverage companies provide the most elemental form of human consumption.

Finally, the impacts of political globalization on the WCM efficiency and firm profitability are examined and the results are summarized in Table 7. As can be observed the findings indicate that as the degree of political globalization increases, CCC, net income and Tobin's q of Turkish agribusinesses decrease at 1%, 10% and 1% significance levels, respectively. Thus, political globalization is also found to have a significant adverse impact on WCM efficiency, profitability and value.

Lastly, an additional finding that deserves mentioning is that although no difference could be detected on the direction of the profitability and efficiency impacts of globalization among its single dimensions of economic, social and political globalization levels, a comparative examination enables us to conclude that the most influential dimension of globalization is the economic globalization while the least influential dimension is the political globalization.

Table 6. Profitability and efficiency impacts of social globalization.[1,2,3]

	Model 9(CCC)	Model 10 (NI)	Model 11 (Tq)
Social Globalization	-3.9567*** (-5.4703)	-0.1239* (-1.8155)	-32.6747*** (-8.7835)
Size	78.6654*** (11.3140)	1.2219* (1.9386)	348.3922*** (8.5727)
Financial Leverage	0.5124 (0.1117)	-0.0147 (-0.0369)	-0.6891 (-0.0317)
GDP growth rate	6.8723 (0.5745)	1.9449* (1.8647)	-85.4626 (-1.5036)
CCC		0.0126* (1.9493)	5.9194*** (14.1892)
Ds	-1.1804 (-0.1045)	-1.2434 (-1.2657)	31.9994 (0.5977)
R-squared	0.327822	0.515189	0.591213
Adjusted R-squared	0.317599	0.458152	0.583412
Mean dependent var	182.0345	9.744994	377.7875
Akaike info criterion	13.51620	9.381525	16.63391
Schwarz criterion	13.58320	9.771152	16.71431
Hannan-Quinn criter.	13.54311	9.538036	16.66619

[1] CCC: cash conversion cycle, NI: net income, Tq: Tobin's q, GDP: gross domestic product Ds: seasonal dummy.

[2] *t*-statistics are presented in parentheses.

[3] *P*-values: <0.01***, <0.05**, <0.1*.

Table 7. Profitability and efficiency impacts of political globalization.[1,2,3]

	Model 12 (CCC)	Model 13 (NI)	Model 14 (Tq)
Political Globalization	-2.7792*** (-5.4399)	-0.0845* (-1.7526)	-23.4348*** (-8.9670)
Size	78.5383*** (11.283)	1.1835 (1.5871)	352.8338*** (8.7278)
Financial Leverage	0.5203 (0.1134)	-0.0149 (-0.0374)	-0.5179 (-0.0239)
GDP growth rate	8.2169 (0.6805)	1.9664* (1.8683)	-70.4339 (-1.2344)
CCC		0.0127* (1.6606)	5.9339*** (14.2957)
Ds	-1.2409 (-0.1098)	-1.2619 (-1.2834)	35.1291 (0.6591)
R-squared	0.646608	0.514366	0.595103
Adjusted R-squared	0.629279	0.457232	0.587376
Mean dependent var	120.3527	9.744994	377.7845
Akaike info criterion	11.20632	9.383222	16.62434
Schwarz criterion	11.58251	9.772848	16.70474
Hannan-Quinn criter.	11.35743	9.539732	16.65663

[1] CCC: cash conversion cycle, NI: net income, Tq: Tobin's q, GDP: gross domestic product Ds: seasonal dummy.

[2] *t*-statistics are presented in parentheses.

[3] *P*-values: <0.01***, <0.05**, <0.1*.

4. Summary and conclusions

Although the efficiency of WCM is vital for all businesses, it is probably one of the most neglected aspects of corporate finance. Besides, given the well-documented industrial differences and the dearth of past empirical research focusing on the agribusiness sector, almost nothing is known about this well-argued relationship for agribusinesses. Considering that emerging market firms are more vulnerable to inefficiencies in working capital practices and agribusiness sector captures a key role for most of the emerging economies, this study attempts to shed a light on this gap through focusing on Turkish agribusinesses. With this motivation, this research was aimed to investigate the profitability effects of WCP which will enable to determine whether aggressive or conservative WCP is promising in terms of profitability and value for Turkish agribusinesses, and to explore the profitability and efficiency impacts of globalization on this sector through concentrating on different dimensions of globalization separately as well. The findings indicate that Turkish agribusinesses can enhance their profitability and create value for their shareholders by adopting a conservative WCP. Besides, their WCM efficiency, profitability and value are found to deteriorate as Turkey becomes more globalized during the research period under consideration. Moreover, this adverse impact is also reported to be significant for each of its single dimensions as well. These results are critically important for the agribusinesses, the industry and the national economy since globalization continues to be an ever-increasing process affecting the global business environment and raise questions on the effectiveness of Turkish agribusiness firms in coping with accelerating global competition. Finally, from a managerial perspective and for policy oriented considerations, it also worth mentioning that the economic globalization seems to be the most influential dimension of globalization while the political globalization seems to be the least influential one. It can be concluded that managers of Turkish agribusinesses can create a positive value by lengthening the CCC up to an optimal level, and both managers and policy makers should concern with the competitiveness impacts of globalization in developing strategies.

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