MANUFACTURING FIRMS' RELIANCE ON PAST OR FUTURE SALES INFORMATION IN INVENTORY PRODUCTION: AN INTERNATIONAL STUDY

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ABSTRACT

This study examines whether manufacturing firm's preference for use of past or future period sales information in determining inventory production is associated with two country level variables – management control system score and shareholder protection level. This study uses archival data to empirically examine the association between inventory production and sales information across twenty countries with different management control system score measured by Bloom et al. (2012) and different shareholder protection level measured by La Porta et al. (1997, 1998) and Djankov et al. (2008). This study finds that the entire sample experience a positive association between current period inventory production and future period sales change and no association between current period inventory production and past period sales change, suggesting that firms generally use future or projected sales change information instead of past sales change information in making production decisions. The study further shows that, after partitioning the sample based on country characteristics, the reliance on the future sales change information appears greater when firms are in countries with low management control system score or with high shareholder protection level. This study uses a large sample to gauge systematic differences in the use of management accounting information in inventory production across countries. The results suggest that less emphasis on management control (which may indicate greater emphasis on decision-making) and high shareholder protection level have a positive effect on the firm's preference of future information.

Keywords: past or future sales information, management control, shareholder protection, inventory production

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INTRODUCTION

This study empirically examines the association between current period inventory production and adjacent past or future period sales activities in manufacturing firms across twenty different countries. In this study, we conjecture that in scheduling inventory production to meet sales demand, in addition to the employment of contemporaneous sales information, some firms may also consider future sales change information, while others may consider past sales change information instead. Such different patterns or preferences of information in inventory production might be associated with the business environment at a country level.

Management accounting information used in decision-making should be forward-looking and differential to be relevant. On the other hand, another management accounting information function—control—prefers verifiable past information (Zimmerman, 2013). Future information is usually more difficult and expensive to acquire and less reliable or verifiable than past information. Thus, preference of either type of information indicates some trade-off considerations.

Contingency theory posits that good management accounting practices vary contingent on many factors, and there is no universally agreed upon optimal set of accounting methods and practices that are suitable for all firms (Otley, 1980, 2016). In this paper, archival data from twenty countries is used to examine whether firms' employment of past period sales change or future period sales change information in inventory production is associated with two country-level variables—management control system score and shareholder protection degree, and such variations indicate different styles or emphases of inventory management practices prevailing in different countries.

The first country-level variable is management control practices (Bloom & Van Reenen, 2007, 2010; Bloom et al., 2012). The management control systems and practices vary across countries. Culture, tradition, history, state of economic development, and many other country elements jointly determine what management practices are considered the most needed, useful, and value-added by firms in these countries (Bloom & Van Reenen, 2010). Thus, in addition to idiosyncratic firm characteristics, firms

operating in the same country with the same external business environments may form a consensus regarding the optimal management philosophy and practices.

Bloom et al. (2012) examine management practice differences across countries to explain the different productivity by surveying 9,079 firms from twenty countries and formulate scores in three categories: monitoring management, targets management, and incentives management. Following the notion that management control system influences management accounting (Anthony & Govindarajan, 2006), we attempt to examine whether these management practice scores affect which type of accounting information, past or future sales change, is associated with the inventory production.

The second country characteristic considered is shareholder protection level (La Porta et al. 1997, 1998; Djankov et al., 2008). We examine whether managerial accounting practices of using past or future sales change information in inventory production are related to the different levels of shareholder protection across countries (La Porta et al., 1997, 1998; Djankov et al., 2008).

Agency theory helps shape managerial accounting (Zimmerman, 2013). In responding to different principal-agent problems between shareholders and managers and between top-level managers and lower-level managers, the managerial accounting practices and methods are likely to differ in providing useful information to facilitate the reduction of agency conflicts and costs, and hence maximize firm value. The management control need for past information and the decision-making need for the future information may vary across countries with different levels of shareholder protection. Thus, shareholder protection to reduce the agency problems could influence the type of management accounting information used in production decision-making.

We identify twenty countries from the intersection of samples used in Bloom et al. (2012) and Djankov et al. (2008) and measure inventory production for each firm-year observation based on cost of goods sold adjusted for inventory change. This study first finds a positive association between current period inventory production and future period sales change,

but no association between current period inventory production and past period sales change in the entire sample, suggesting that firms generally use future or projected sales change information instead of past sales change in making production decisions.

The sample is then partitioned based on the median country-level management score (Bloom et al., 2012). The association between production and future period sales appears greater in the low management score sub-sample, but not statistically higher than that of the high management score sub-sample. Additionally, we find a negative association between inventory production and past period sales change only in the high management score sub-sample.

The sample is also partitioned based on the median country-level shareholder protection level (La Porta et al., 1997, 1998; Djankov et al., 2008). We find that the association between production and future period sales change in the high shareholder protection level sub-sample is statistically higher than that of the low shareholder protection level sub-sample. We also find a negative association between production and past period sales change only in the low shareholder protection level sub-sample.

Finally, we use the medians of both country characteristics variables to form four sub-samples to examine the association between current period production and sales change in the adjacent periods. We find that the positive association between current period production and future sales change information exists only in the sub-sample with high shareholder protection level and low total management score or the sub-sample with high total management score and low shareholder protection level. The other two sub-samples with two country characteristics variables at both low levels or high levels do not present such association.

We contribute to the extant research by using archival data to gauge systematic differences in use of management accounting information in inventory production across countries. Extant research on managerial accounting practices are mostly field study or survey study because large archival data sets for individual firms are not available on a large scale to conduct empirical study. Managerial accounting is local to a firm and difficult to capture not only empirically but also cross-sectionally. This

research attempts to capture a common business or accounting strategy used by firms with common country characteristics.

Accounting research in an international setting mostly focuses on external financial accounting. While financial accounting research is extensive with many interesting and informative findings, prior research on international management accounting, particularly empirical research, is very limited. Prior financial accounting research (e.g. Ball et al., 2000, Ball et al., 2003) shows that institutional differences drive the financial accounting outcomes to differ across countries despite the same or similar set of accounting standards. Similarly, we contribute to management accounting research by studying the impact of country-level characteristics on management accounting practices.

Our research could be of interest to supply chain management research as well. Since management accounting is an integral component of management control practices, and inventory management is important in the supply chain, our study could shed some light on how accounting information facilitates management control differently across countries.

The remainder of this paper is organized as follows: Section 2 reviews prior research, and develops the research questions. Section 3 describes the research design. Sections 4 and 5 discuss the sample selection and results. The last section concludes.

PRIOR LITERATURE AND RESEARCH QUESTIONS

Management Accounting Practices/Techniques Over Time/ Across Countries

The development of management accounting practices accompanies the modernization of industrial firms and the increased complexity in managing such firms. The new techniques and practices are invented to solve or cope with a specific problem, and often result in improved operational results. These advancements in good management accounting practices then disseminate to other firms, industries, and countries, if similar problems arise. Nevertheless, not all good practices can be applied universally.

According to value-added management, management accounting practices are considered good when they contribute to firm value/shareholder value, and according to contingency theory, good practices are contingent on many factors. Ittner and Larcker (2001) state that, "No universally applicable system of management and control—the choice of appropriate accounting and control techniques depends upon the circumstances surrounding an organization. Among the prominent contingent factors in this literature are the external environment, technology, competitive strategy and mission, business unit and industry characteristics, and knowledge and observability factors."

The adoption of new and more advanced management accounting practices is influenced not only by firms' idiosyncrasies, but also by their home country characteristics. For example, Macarthur (2006) points out that a noted factor about the long-term success of German management accounting systems is the impact of "German culture and practices." Compared to the US, Germany is classified as a strong uncertainty avoidance country with a low tolerance for uncertainty (Macarthur, 2006). Although both the US and Germany are developed Western economies with superior management practices, the variations in the national cultural characteristics between the two countries led to differences in the approach to management accounting (Macarthur, 2006).

When comparing actual management accounting techniques used in practices across countries of different economies, researchers surprisingly find that similar techniques are used in not only different developed countries, but also imported or adopted in less developed countries. Hopper et al. (2009) reviewed research on management accounting in developing countries and found that there are no management accounting techniques unique to less developed countries, and no different accounting techniques used in rich and poor countries.

However, application of same techniques across country appears to differ. For example, Shileds et al. (1991) compare Japanese and US firms and find many subtle differences: US firms distinguish variable overhead and fixed overhead in more cases than Japan; US firms are more diverse in budget revision intervals than Japan; US firms use standard costs less for budgeting than Japan and emphasize more on the past; in setting standard

costs, Japanese firms tend to use standards that focus on future performance while US firms rely on currently attainable and average past performance. Another study, Krumwiede and Suessmair (2007) find that, compared to the US firms, German firms have a longer-term planning horizon, are more likely to use the direct costing, and are more likely to adopt more advanced costing practices. These descriptive and comparative studies suggest that the same techniques are used variably across countries.

In this paper, we empirically investigate whether information use in inventory production management differs across countries with two country-level characteristics—country-level management practice and country-level shareholder protection.

Inventory Production Management and Control

Many management control practices and choices directly or indirectly influence inventory production and control: just-in-time production, budgeting types, lean production, etc. To the extent that these management practices and emphases are variably implemented in business, inventory production and control can lead to favorable outcomes. Voluminous research has generally shown the association between inventory reduction and many management tools such as just-in-time and world-class manufacturing and the association between reduced inventory and improved earnings and market performance (e.g., Fullerton et al,. 2003; Chen et al., 2005; Pong & Mitchell, 2012).

However, improving inventory control can be challenging, and inventory management and control can be hindered or facilitated by certain accounting information and practices. The traditional absorption accounting is often criticized for its incentive to overproduce, and variable accounting is the alternative to demotivate inventory overproduction. A useful budget can help firms plan production based on demand needs, and good enforcement of a budget will reduce the likelihood of overproduction. Firms' performance evaluation based on financial measures provides greater overproduction incentives than non-financial measures.

The relationship between overproduction and stock market performance has been documented in prior research. In general, the research (e.g., Lev &

Thiagarajan, 1993; Abarbanell & Bushee, 1997) shows inventory growth in excess of sales growth is negatively correlated with both contemporaneous stock returns and future earnings.

Attempting to explain overproduction incentive, some research suggests that overproduction can be opportunistic and is used to increase contemporaneous performance (Gupta et al., 2010; Cook et al., 2012; Young et al., 2014). Bruggen et al. (2011) also find that inventory buildup is associated with lower brand image in an automobile manufacturer. However, Jiambalvo et al. (1997) suggest that overproduction on average is not opportunistic, but rather a reflection of firms' inventory buildups in expectation of higher future sales, and find that the stock market reacts positively to overproduction.

Thomas and Zhang (2002) document some empirical regularities for extreme inventory change firms; for example, firms with inventory increases (decreases) experience higher (lower) profitability, growth, and abnormal returns over the prior five years, but then reverse after the extreme inventory change. Thomas and Zhang (2002) conjecture that the reversal is caused by demand shifts; however, such impact is masked by either earnings management or variation in production levels changing the allocation weight of fixed manufacturing costs into Cost of Goods Sold.

Overall, prior research findings suggest the existence of inventory buildup or imperfect production decision management, but with no consensus on the causes. Although earnings management has often been offered as a plausible explanation for overproduction, there is an alternative possibility that inventory is not well managed to align with the production needs due to the managers' inability to respond to the demand change (Gupta, Pevzner & Seethamraju, 2010).

In business management, inventory production should reflect demand change. The demand change is dynamic, and achieving demand-supply match normally considers the demand change in the past period, in the current period, and in the future period. We investigate whether inventory production in the current period is more associated with information of the past demand or the future demand. We study firms' inventory production in two distinctive patterns: inventory production based on future sales or

inventory production based on past sales (or both). Essentially, production changes in responding to sales change, and firms could either use projected sales change or rely on historical sales change to adjust the production for the demand.

Different from prior studies, we attempt to capture which type of management accounting information—past or future—is associated with the inventory production decision. According to Zimmerman (2013), management accounting practices serve two purposes, decision management and management control, and often require a trade-off between the two. Decision management emphasizes information precision and planning while management control intends to reduce agency conflicts and hence prefers verifiable past information. Many management accounting choices, particularly inventory production, are a reflection of such consideration and balance. For example, when the goal is to control, budgeting is more likely to adopt a top-down approach and relies more on verifiable past information. On the other hand, when the goal is to make better decision management, it is more likely to adopt a bottom-up approach and incorporate future information provided by the lower-level managers, who often have the special business knowledge to make better projections (Zimmerman, 2013). In summary, use of future information is more relevant for decision-making while use of past information is more justified in management control.

Research Question 1: Is current period inventory production associated with past period sales change information and future period sales change information?

Management Systems and Practices Across Countries

According to Shields et al. (1991), "management accounting is just one component of a firm's total management system, and its role cannot be fully understood without considering its organizational context, the process whereby it is applied and the goals that management seeks to achieve." Relatedly, management control systems have historical accounting origins when researchers attempt to address accounting information used for managers (Strauss & Zecher, 2013). For example, Anthony and Govindarajan (2006) define management control systems as the process or tools used by managers to influence other organization members to achieve

the desired goals, which integrate or rely on management accounting to provide information. Thus, business management control system and practices calls for a compatible design of management accounting system, i.e., management accounting design should reflect or assist the demands and objectives of business management strategy.

Contingency theory assumes that there is no one best way to structure a firm; rather, firms must adapt their structure to fit their environmental contingencies (Chenhall, 2003; Gerdin & Greve, 2004, 2008). It is important for firms to find the right fit, since lack of alignment between the internal needs and external environment will lead to dysfunctional consequences (Fry & Smith, 1987; Fullerton et al., 2014).

A research by two economists (Bloom & Van Reenen, 2007, 2010) develops a survey method to construct management practice measures in three areas: monitoring management, targets management, and incentives management. The three measures capture three management aspects of how firms control personnel, set the targets, and conduct performance evaluation. Bloom and Van Reenen (2010) show that there are significant cross-country and within-country differences in management practices and differences in productivity between firms and countries can be explained by variations in management practices. These management measures are also strongly associated with profitability, Tobin's Q, and survival rates. Relying on the country-level management score in Bloom et al. (2012), we investigate the second research question stated as follows.

Research Question 2: Is the association between firms' current period inventory production and past/future period sales information in countries with good management practices different from that in countries with poor management practices?

Shareholder Protection Levels Across Countries

Different shareholder protection degrees across countries are often used to explain the different accounting information qualities in external financial reporting at the country level. However, whether and how the degree of shareholder protection affects internal management accounting information is still an empirical question and receives little attention. We

surmise that shareholder protection affects external accounting information and internal accounting information differently based on some anecdotal evidence. For example, the US and the UK are two countries with a similar level of shareholder protection and hence external reporting qualities are similar. However, the UK is often blamed for its low productivity as a result of bad management (Bloom & Veenen, 2010), while the US is praised for its best management (Bloom et al., 2012). The US, Germany, and Japan are three developed countries known for their contributions, advances, and achievements in modern management accounting practices but these three countries have different levels of shareholder protection. Pond and Mitchell (2012) study UK firms' inventory and find the level of inventory turnover is better than the US and Germany, but not as good as Japan.

Management accounting has developed into the value-based management approach that emphasizes the creation of long-term firm value for the shareholders (Ittner & Larcker, 2001). The shareholder protection mechanism is intended to protect external shareholders from the internal agent problems that may hurt shareholders' interests, and such protection in the principal-agent setting can facilitate the adoption and development of more effective management accounting practices in the long run. But in short-term, shareholder protection emphasis might hinder execution of some good management accounting practices when excessive actions/activities/resources are devoted to protect shareholders, and certain good management practices are not considered, postponed, or rejected due to interference with the other consideration—protecting shareholders. To our knowledge, Bank, Byzalov and Threinen (2013) is the only research that links the shareholder protection to some management accounting practices and found that strong shareholder protection reduces cost stickiness because empire-building behavior by managers is deterred.

Managerial accounting is not only affected by the principal-agent problem, but also by an agent-agent problem. Bouillon et al. (2006) show that the management control system is less costly and more effective when business strategy is based on both alignments of principal-agent and agent-agent.

With diversity of governance arrangements around the world, La Porta et al. (2000) point out that strong investor protection is associated

with effective corporate governance and suggest using investor protection as the starting point to describe differences in corporate governance regimes across countries. Weak governance and weak shareholder protection of small shareholders intensify principal-agent problems and create new agent-agent problems (expropriation) (Dharwadkar et al., 2000).

Along the same line, we examine whether management accounting practices, specifically inventory production management, vary contingent on the shareholder protection level across countries. So our third question is stated as follows.

Research Question 3: Is the association between firms' current period inventory production and past/future period sales information in countries with high-level shareholder protection different from that in countries with low-level shareholder protection?

MODEL

Previous research (Roychowhury, 2006) on real earnings management develops a model to estimate normal production costs and overproduction costs as follows.

$$PROD_{t/}TA_{t-1} = \alpha 0 + \alpha 1(1/TA_{t-1}) + \alpha 2(SALES_t/TA_{t-1}) + \alpha 3(\Delta SALES_t/TA_{t-1}) + \alpha 4(\Delta SALES_{t-1}/TA_{t-1}) + \varepsilon_t \quad (1)$$

In this model, total production, $PROD_{t/}TA_{t-1,}$ is the sum of the cost of goods sold and the change in inventory during the year scaled by total assets at the beginning of the year, $SALES_t/TA_{t-1}$ is total sales scaled by total assets at the beginning of the year, $\Delta SALES_t/TA_{t-1}$ is current year sales change scaled by total assets at the beginning of the year, $\Delta SALES_{t-1}/TA_{t-1}$ is prior year sales change scaled by total assets at the beginning of the year. Overproduction is estimated as the difference between actual production costs and estimated normal production costs.

We revise this model based on the managerial accounting approach to determine budgeted inventory production in a budgeting process. Production budget is projected based on expected sales in the same period adjusted

for expected inventory level change. The expected ending inventory is maintained to anticipate the sales needs at the start of the following year, thus should be related to future sales change. Production costs model is hence revised as a function of current period sales and future period sales change, a reflection of management accounting practices emphasis on control and management in the future. The model is as follows in equation (2):

$$PROD_{t/}TA_{t-1} = \alpha 0+\alpha 1(1/TA_{t-1}) + \alpha 2(SALES_t/TA_{t-1}) + \alpha 3(\Delta SALES_{t+1}/TA_{t1})+\varepsilon_t \quad (2)$$

In equation (2), $\Delta SALES_{t+1}$ is change in sales in the next year. Similar to equation (1), all variables are scaled by total assets at the beginning of the year, TA_{t-1}.

We further revise the model to reflect inventory management based on adjacent prior and future period sales changes as in equation (3):

$$PROD_{t/}TA_{t-1}=\alpha 0+\alpha 1(1/TA_{t-1})+\alpha 2(SALES_t/TA_{t-1})+\alpha 3(\Delta SALES_{t-1}/TA_{t-1})+\alpha 4(\Delta SALES_t/TA_{t-1})+ \alpha 5(\Delta SALES_{t+1}/TA_{t-1})+\varepsilon_t \quad (3)$$

Equation (3) includes two more variables than equation (2). $\Delta SALES_{t-1}$ is change in sales in the last year, and $\Delta SALES_t$ is change in sales in the current year. This is the main model for our empirical test of whether and how firms employ past or future sales change information in the production decision.

SAMPLE SELECTION

We obtain from Computstat Global all manufacturing firms (SIC codes 2000-3999) in the period 2005-2013 from twenty countries, Australia, Brazil, Canada, Chile, China, France, Germany, Greece, India, Italy, Japan, Mexico, New Zealand, Poland, Portugal, Republic of Ireland, Sweden, the UK, and the US. These twenty countries are chosen because the two country level variables used in this study are available for each country.

Final sample consists of 44,793 firm-year observations that have data to estimate equations (2) and (3), and with firm level variables not in the top and bottom one percent. Table 1 Panel A summarizes the country level

variables and the number of observations in each country. The aggregate and three component management practice scores are from Bloom et al. (2012) and the anti-director rights index is from Djankov et al. (2008). Bloom et al. (2012) examines management practices differences across countries to explain the different productivity by surveying 9,079 firms from twenty countries, and eighteen questions in the questionnaire are designed to measure monitoring management, targets management, and incentives management. The overall management score is based on the average of the above three categories. In general, firms in developing countries tend to be poorly managed. Djankov et al. (2008) form the aggregate index of shareholder rights by summing: (1) vote by mail; (2) shares not blocked or deposited; (3) cumulative voting; (4) oppressed minority; (5) pre-emptive rights; and (6) capital. Table 1 Panel B summarizes the descriptive statistics of firm-year variables used in equations (2) and (3), mean, standard deviation, median, etc.

Table 1: Descriptive of Variables

Panel A: Country Level Variables

	Overall Management	Monitoring Management	Targets Management	Incentives Management	Anti-director rights revised	Number of Observations
Argentina	2.76	3.08	2.67	2.56	3	183
Australia	3.02	3.27	3.02	2.75	4	1,466
Brazil	2.71	3.06	2.69	2.55	5	719
Canada	3.17	3.54	3.07	2.94	4	393
Chile	2.83	3.14	2.72	2.67	4	285
China	2.71	2.90	2.62	2.69	1	7,847
France	3.02	3.41	2.95	2.73	3	1,290
Germany	3.23	3.57	3.21	2.98	2.5	1,536
Greece	2.73	2.97	2.65	2.58	2	474
India	2.67	2.91	2.66	2.63	5	8,256
Italy	3.02	3.25	3.09	2.76	2.5	658
Japan	3.23	3.50	3.34	2.92	3.5	7,614
Mexico	2.92	3.29	2.89	2.71	3	215
New Zealand	2.93	3.18	2.96	2.63	4	155
Poland	2.90	3.12	2.94	2.83	2	884
Portugal	2.87	3.27	2.83	2.59	2.5	77
Rep. of Ireland	2.89	3.14	2.81	2.79	4	89
Sweden	3.20	3.63	3.18	2.83	3.5	876
UK	3.02	3.32	2.97	2.85	5	1,896
US	3.35	3.57	3.25	3.25	3	9,880
Total						44,793

Final sample consists of manufacturing firms with SIC code between 2000 and 3999. All observations are required to have cost of goods sold, sales and inventory change data. The extreme 1% of cost of goods sold/ total assets, and sales/total assets observations in each country are deleted.

The four management practice scores are from Bloom et al. (2012) and anti-director rights index is from Djankov et al. (2008).

Panel B: Descriptive Statistics of Firm Level Variables

	Mean	Std	Min	Median	Max	N
$PROD_t/TA_{t-1}$	0.7145	0.5102	-0.1983	0.6146	4.7807	44,793
$SALES_t/TA_{t-1}$	1.0045	0.5830	0.0000	0.9213	4.7516	44,793
$\Delta SALES_{t-1}/TA_{t-1}$	-0.0191	6.0978	-684.42	0.0619	1.2219	44,793
$\Delta SALES_t/TA_{t-1}$	0.0860	0.2593	-1.6145	0.0552	2.5470	44,793
$\Delta SALES_{t+1}/TA_{t-1}$	0.0905	0.3149	-1.5280	0.0417	4.1180	44,793

$PROD_t/TA_{t-1,}$ is the sum of the cost of goods sold and the change in inventory during the year scaled by total assets at the beginning of the year. $SALES_t/TA_{t-1}$ is total sales scaled by total assets at the beginning of the year. $\Delta SALES_{t-1}/TA_{t-1}$ is prior year sales change scaled by total assets at the beginning of the year. $\Delta SALES_t/TA_{t-1}$ is current year sales change scaled by total assets at the beginning of the year. $\Delta SALES_{t+1}/TA_{t-1}$ is future year sales change scaled by total assets at the beginning of the year.

RESULTS

We first estimate equations (2) and (3) with fixed country and industry effect for the entire final sample, and the results are shown in Table 2. The estimated coefficient on $SALES_t/TA_{t-1}$ is significant in both regressions. The estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$ is 0.0547 (t=14.69) in equation (2) regression and 0.0503 (t=13.42) in equation (3) regression, respectively. The

estimated coefficient on $\Delta SALES_{t-1}/TA_{t-1}$ is not significant and the estimated coefficient on $\Delta SALES_t/TA_{t-1}$ is significantly positive (0.0456, t=8.82) in equation (3). The results suggest that production in general is not associated with the past period sales change and positively associated with the future period sales change. Thus, for research question 1, we find that the future period sales change appears to play a bigger role than the past period sales change in inventory production.

Table 2: Results of Regressing Production Costs on Past, Current, and Future Periods Sales Changes

$PROD_t/TA_{t-1}=\alpha0+\alpha1(1/TA_{t-1})+\alpha2(SALES_t/TA_{t-1})+\alpha3(\Delta SALES_{t+1}/TA_{t-1})+\varepsilon_t$ (2)
$PROD_t/TA_{t-1}=\alpha0+\alpha1(1/TA_{t-1})+\alpha2(SALES_t/TA_{t-1})+\alpha3(\Delta SALES_{t-1}/TA_{t-1})+\alpha4(\Delta SALES_t/TA_{t-1})+\alpha5(\Delta SALES_{t+1}/TA_{t-1})+\varepsilon_t$ (3)

	Dep= $PROD_t/TA_{t-1}$	Dep= $PROD_t/TA_{t-1}$
$1/TA_{t-1}$	0.0511***	0.0506***
	(15.19)	(15.06)
$SALES_t/TA_{t-1}$	0.7457***	0.7357***
	(355.01)	(308.32)
$\Delta SALES_{t-1}/TA_{t-1}$		-0.0001
		(0.44)
$\Delta SALES_t/TA_{t-1}$		0.0456***
		(8.82)
$\Delta SALES_{t+1}/TA_{t-1}$	0.0547***	0.0503***
	(14.69)	(13.42)
Adj. R^2	0.7896	0.6682
N	44,793	44,793

***, **, * statistically significant at the 1 percent, 5 percent, 10 percent levels for a two-tailed test.
The results are based on estimating regressions with fixed country and industry effect.
The variables are described as in Table 1.

To examine research question 2, we use the median of country level total management practice score (Bloom et al. 2012) to partition the final sample into two sub-samples, and estimate equation (2) and equation (3) for each sub-sample with high or low management practice score. We

estimate the two equations with country and industry fixed effect and the results are reported in Table 3 Panel A.- For firms in countries with low management practice score, the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$ is 0.0347 (t=9.51) in equation (2) regression and 0.0331 (t=8.99) in equation (3) regression, respectively. For firms in countries with high management practice score, the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$ is 0.0259 (t=4.11) in equation (2) regression and 0.0238 (t=3.75) in equation (3) regression. Thus, the low total management score firms appear to have higher estimated coefficient on the future sales growth variable than the high total management score firms. However, we do not find this difference is significant (t=1.25, p= 0.2596, untabulated).

Panel A also shows that in Equation (3), the estimated coefficient on $\Delta SALES_t/TA_{t-1}$ is significantly positive in both sub-samples, 0.0207 (t=3.55) in low score sub-sample and 0.0157 (t=0.0157) in high score sub-sample, respectively. The results are mixed for $\Delta SALES_{t-1}/TA_{t-1}$ with a significantly negative estimated coefficient for the high management score sub-sample -0.0343 (t=4.55) and an insignificant estimated coefficient -0.0001 (t=0.93) for the low management score sub-sample.

Table 3: Results of Regressing Production Costs on Past, Current and Future Periods Sales Changes for Samples with Different Levels of Management Scores

$PROD_t/TA_{t-1}=\alpha0+\alpha1(1/TA_{t-1})+\alpha2(SALES_t/TA_{t-1})+\alpha3(\Delta SALES_{t+1}/TA_{t-1})+\varepsilon_t$ (2)
$PROD_t/TA_{t-1}=\alpha0+\alpha1(1/TA_{t-1})+\alpha2(SALES_t/TA_{t-1})+\alpha3(\Delta SALES_{t-1}/TA_{t-1})+\alpha4(\Delta SALES_t/TA_{t-1})+\alpha5(\Delta SALES_{t+1}/TA_{t-1})+\varepsilon_t$ (3)

Panel A: Sample Partitioned by Total Management Score

	Low Total Management	Low Total Management	High Total Management	High Total Management
$1/TA_{t-1}$	-0.0541	-0.0576	0.0491***	0.0483***
	(0.69)	(0.74)	(13.03)	(12.81)
$SALES_t/TA_{t-1}$	0.8492***	0.8437***	0.6449***	0.6448***
	(385.67)	(313.28)	(195.95)	(179.46)
$\Delta SALES_{t-1}/TA_{t-1}$		-0.0001		-0.0342***
		(0.93)		(4.55)

$\Delta SALES_t/TA_{t-1}$		0.0207***		0.0157**
		(3.55)		(2.05)
$\Delta SALES_{t+1}/TA_{t-1}$	0.0347***	0.0331***	0.0259***	0.0238***
	(9.51)	(8.99)	(4.11)	(3.75)
Adj. R^2	0.9111	0.9111	0.6681	0.6682
N	19,029	19,029	25,764	25,764

***, **, * statistically significant at the 1 percent, 5 percent, 10 percent levels for a two-tailed test.
The results are based on estimating regressions with fixed country and industry effect for the sample partitioned by median total management score.
The variables are described as in Table 1.

Panel B: Sample Partitioned by Monitoring Management Score

	Low Monitoring Management	Low Monitoring Management	High Monitoring Management	High Monitoring Management
$1/TA_{t-1}$	0.1533***	0.1520***	0.0488***	0.0480***
	(3.70)	(3.67)	(12.89)	(12.67)
$SALES_t/TA_{t-1}$	0.8468***	0.8408***	0.6445***	0.6448***
	(383.12)	(311.76)	(193.94)	(177.79)
$\Delta SALES_{t-1}/TA_{t-1}$		-0.0001		-0.0352***
		(0.88)		(4.64)
$\Delta SALES_t/TA_{t-1}$		0.0226***		0.0140*
		(3.89)		(1.81)
$\Delta SALES_{t+1}/TA_{t-1}$	0.0364***	0.0346***	0.0236***	0.0217***
	(9.93)	(9.35)	(3.70)	(3.38)
Adj. R^2	0.9083	0.9084	0.6673	0.6676
N	19,550	19,550	25,243	25,243

***, **, * statistically significant at the 1 percent, 5 percent, 10 percent levels for a two-tailed test.
The results are based on estimating regressions with fixed country and industry effect for the sample partitioned by median monitoring management score.
The variables are described as in Table 1.

Panel C: Sample Partitioned by Targets Management Score

	Low Targets Management	Low Targets Management	High Targets Management	High Targets Management
$1/TA_{t-1}$	-0.0540	-0.0576	0.0491***	0.0483***
	(0.69)	(0.74)	(13.03)	(12.81)
$SALES_t/TA_{t-1}$	0.8492***	0.8437***	0.6449***	0.6449***
	(385.67)	(313.28)	(195.95)	(179.46)
$\Delta SALES_{t-1}/TA_{t-1}$		-0.0001		-0.0342***
		(0.93)		(4.55)
$\Delta SALES_t/TA_{t-1}$		0.0207***		0.0157**
		(3.55)		(2.05)
$\Delta SALES_{t+1}/TA_{t-1}$	0.0347***	0.0331***	0.0259***	0.0238***
	(9.51)	(8.99)	(4.11)	(3.75)
Adj. R^2	0.9110	0.9111	0.6681	0.6684
N	19,029	19,029	25,764	25,764

***, **, * statistically significant at the 1 percent, 5 percent, 10 percent levels for a two-tailed test.
The results are based on estimating regressions with fixed country and industry effect for the sample partitioned by median targets management score.
The variables are described as in Table 1.

Panel D: Sample Partitioned by Incentives Management Score

	Low Incentives Management	Low Incentives Management	High Incentives Management	High Incentives Management
$1/TA_{t-1}$	0.3394***	0.3382***	0.0484**	0.0475***
	(7.90)	(7.88)	(12.83)	(12.60)
$SALES_t/TA_{t-1}$	0.8389***	0.8311***	0.6550***	0.6538***
	(365.79)	(298.52)	(199.36)	(181.23)
$\Delta SALES_{t-1}/TA_{t-1}$		-0.0001		-0.0333***
		(0.78)		(4.50)
$\Delta SALES_t/TA_{t-1}$		0.0302***		0.0214***
		(4.93)		(2.82)

$\Delta SALES_{t+1}/TA_{t-1}$	0.0410***	0.0385***	0.0250***	0.0222***
	(10.53)	(9.82)	(4.08)	(3.62)
Adj. R^2	0.9018	0.9019	0.6786	0.6789
N	19,501	19,501	25,292	25,292

***, **, * statistically significant at the 1 percent, 5 percent, 10 percent levels for a two-tailed test.
The results are based on estimating regressions with fixed country and industry effect for the sample partitioned by median incentives management score.
The variables are described as in Table 1.

Further, we partition the sample alternatively based on the three components of management practice scores (Bloom et al., 2012), i.e., the median of monitoring management, targets management, or incentives management, and compare the results for high and low score sub-samples. The results are presented in Panel B, C, D in Table 3. The results all have the same pattern as in Panel A. Overall, the positive estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$ suggest that firms rely on future sales change information to schedule production, and the reliance is a little higher in firms located in low management practice countries. The estimated coefficient on $\Delta SALES_{t-1}/TA_{t-1}$ is quite different for the two sub-samples, negative for the firms from high management score countries and not significant for the firms from low management score countries.

In the previous discussion, accounting for management control prefers past information while accounting for decision-making prefers future information. Although we are unable to determine the individual and relative importance of management control and decision-making in every country, the Bloom et al. (2012) management practice measure does appear to be more focused on the role of management control. The results in Table 3 corroborates with our discussion in that the high management score sub-sample reports a lower estimated coefficient on the future information than the low management score sub-sample, and only the high management score sub-sample has a significant estimated coefficient on the past information.

To investigate research question 3, we partition the sample based on the median of anti-director rights index. For each sub-sample, we estimate equation (2) and (3) with fixed country and industry effect, and the results are presented in Table 4. For firms in countries with low anti-director rights index, the estimated coefficient on the $\Delta SALES_{t+1}/TA_{t-1}$ is 0.0458 (t=7.48) in equation (2); the estimated coefficient on $\Delta SALES_{t-1}/TA_{t-1}$ is -0.0330

(t=3.88), the estimated coefficient on $\Delta SALES_t/TA_{t-1}$ is 0.0581 (t=7.08), and the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$is 0.0396 (t=6.41) in equation (3) regression. For firms in countries with high anti-director rights index, the estimated coefficient on the $\Delta SALES_{t+1}/TA_{t-1}$ is 0.0568 (t=13.96) in equation (2); the estimated coefficient on $\Delta SALES_{t-1}/TA_{t-1}$ is -0.0001 (t=0.61), the estimated coefficient on $\Delta SALES_t/TA_{t-1}$ is 0.0298 (t=5.08), and the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$is 0.0541 (t=13.18) in equation (3) regression. The results show that in both samples, the production costs are positively associated with current period sales growth $\Delta SALES_t/TA_{t-1}$ and future period sales growth $\Delta SALES_{t+1}/TA_{t-1}$, but the association between the production costs and past period sales growth $\Delta SALES_{t-1}/TA_{t-1}$ is mixed (i.e., significantly negative in the low shareholder protection sub-sample but insignificant in the high shareholder protection sub-sample). Also, between the two different samples, the high shareholder protection firms appear to have a greater reliance on the future sales growth (higher estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$) than the low shareholder protection firms, and untabulated results show that this difference is significant (t=1.94, p=0.0522).

Table 4: Results of Regressing Production Costs on Past, Current and Future Periods Sales Changes for Samples with Different Levels of Shareholder Protection

$PROD_t/TA_{t-1}=\alpha0+\alpha1(1/TA_{t-1})+\alpha2(SALES_t/TA_{t-1})+\alpha3(\Delta SALES_{t+1}/TA_{t-1})+ \varepsilon_t$ (2)
$PROD_t/TA_{t-1}=\alpha0+\alpha1(1/TA_{t-1})+\alpha2(SALES_t/TA_{t-1})+\alpha3(\Delta SALES_{t-1}/TA_{t-1})+ \alpha4(\Delta SALES_t/TA_{t-1})+ \alpha5(\Delta SALES_{t+1}/TA_{t-1})+\varepsilon_t$ (3)

	Low Shareholder Protection	Low Shareholder Protection	High Shareholder Protection	High Shareholder Protection
$1/TA_{t-1}$	0.0566***	0.0557***	0.0192***	0.0187***
	(13.32)	(13.14)	(2.89)	(2.82)
$SALES_t/TA_{t-1}$	0.6937***	0.6846***	0.7971***	0.7905***
	(201.24)	(172.27)	(346.28)	(298.84)
$\Delta SALES_{t-1}/TA_{t-1}$		-0.0330***		-0.0001
		(3.88)		(0.61)
$\Delta SALES_t/TA_{t-1}$		0.0581***		0.0298***

		(7.08)		(5.08)
$\Delta SALES_{t+1}/TA_{t-1}$	0.0458**	0.0396***	0.0568***	0.0541***
	(7.48)	(6.42)	(13.96)	(13.18)
Adj. R^2	0.6954	0.6963	0.8821	0.8823
N	23,044	23,044	21,749	21,749

***, **, * statistically significant at the 1 percent, 5 percent, 10 percent levels for a two-tailed test.
The results are based on estimating regressions with fixed country and industry effect for the sample partitioned by median shareholder protection.
The variables are described as in Table 1.

Overall, the results presented in Table 3 and 4 suggest that, although firms in different countries all rely on the future sales information in the production decision, the degree of reliance on the future sales change information is slightly different. Firms in poor management score countries give more weight to the future information than the firms in high management score countries, and firms in high level shareholder protection countries tend to rely more on the future sales information than firms in low level shareholder protection countries. Regarding the use of past sales change information, only firms in good management score country or in low level shareholder protection countries experience the negative association between production costs the past period sales change.

To further investigate research question 2 and 3, we estimate equation (3) and tabulate the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$, $\Delta SALES_t/TA_{t-1}$, and $\Delta SALES_{t-1}/TA_{t-1}$ in a two-by-two matrix based on low or high shareholder protection and low or high total management score. The results are reported in Table 5.

Table 5 Panel A compares the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$. In the sub-sample of low total management score and low level shareholder protection countries, the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$ is -0.0032 (t=0.60). In the sub-sample with high total management score and low level shareholder protection, the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$ is 0.0352 (t=3.58). In the sub-sample with low total management score and high level shareholder protection, the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$ is 0.0534 (t=10.56). In the sub-sample with high total management score and high level shareholder protection, the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$ is 0.0051 (t=0.74). The results

show the estimated coefficient on $\Delta SALES_{t+1}/TA_{t-1}$ is significant only in two cells, i.e., the combination of the low shareholder protection and high total management and the combination of the high level shareholder protection and low total management. The insignificant estimated coefficient in the high shareholder protection degree and high total management score sub-sample suggest that the two institutional country variables do not influence firms' information preference in the same manner.

Table 5 Panel B compares the estimated coefficient on $\Delta SALES_t/TA_{t-1}$. In the sub-sample of low total management score and low level shareholder protection countries, the estimated coefficient on $\Delta SALES_t/TA_{t-1}$ is -0.0115 (t=1.34). In the sub-sample with high total management score and low level shareholder protection, the estimated coefficient on $\Delta SALES_t/TA_{t-1}$ is 0.0425 (t=3.60). In the sub-sample with low total management score and high level shareholder protection, the estimated coefficient on $\Delta SALES_t/TA_{t-1}$ is 0.0370 (t=4.61). In the sub-sample with high total management and high level shareholder protection score, the estimated coefficient on $\Delta SALES_t/TA_{t-1}$ is -0.0271 (t=3.27).

Table 5 Panel C compares the estimated coefficient on $\Delta SALES_{t-1}/TA_{t-1}$. In the sub-sample of low total management score and low level shareholder protection countries, the estimated coefficient on $\Delta SALES_{t-1}/TA_{t-1}$ is -0.0998 (t=10.69). In the sub-sample with high total management score and low level shareholder protection, the estimated coefficient on $\Delta SALES_{t-1}/TA_{t-1}$ is -0.0450 (t=3.74). In the sub-sample with low total management score and high level shareholder protection, the estimated coefficient on $\Delta SALES_{t-1}/TA_{t-1}$ is -0.0000 (t=0.79). In the sub-sample with high total management score and high level shareholder protection, the estimated coefficient on $\Delta SALES_{t-1}/TA_{t-1}$ is -0.0230 (t=2.96).

Table 5: Summary of Regression Results of Estimated Coefficient on $\Delta SALES_{t+1}/TA_{t-1,}$ $\Delta SALES_t/TA_{t-1,}$ and $\Delta SALES_{t-1}/TA_{t-1}$ in Equation (3) for Low/ High Management Score and Shareholder Protection Level Combinations

Panel A: Estimated Coefficient on $\Delta SALES_{t+1}/TA_{t-1,}$

	Low Total Management	High Total Management	
Low Shareholder Protection	-0.0032 (t=0.60) N=9,680	0.0352*** (t=3.58) N=13,364	0.0396*** (t=6.42) N=23,044
High Shareholder Protection	0.0534*** (t=10.56) N=9,349	0.0051 (t=0.74) N=12,400	0.0541*** (t=13.18) N=21,749
	0.0331*** (t=8.99) N=19,029	0.0238*** (t=3.75) N=25,764	

Panel B: Estimated Coefficient on $\Delta SALES_t/TA_{t-1}$

	Low Total Management	High Total Management	
Low Shareholder Protection	-0.0115 (t=1.34) N=9,680	0.0425*** (t=3.60) N=13,364	0.0581*** (t=7.08) N=23,044
High Shareholder Protection	0.0370*** (t=4.61) N=9,349	-0.0271*** (t=3.27) N=12,400	0.0298*** (t=5.08) N=21,749
	0.0207*** (t=3.55) N=19,029	0.0157** (t=2.05) N=25,764	

Panel C: Estimated Coefficient on $\Delta SALES_{t-1}/TA_{t-1}$

	Low Total Management	High Total Management	
Low Shareholder Protection	-0.0998*** (t=10.69) N=9,680	-0.0450*** (t=3.74) N=13,364	-0.0330*** (t=3.88) N=23,044
High Shareholder Protection	-0.0000 (t=0.79) N=9,349	-0.023*** (t=2.96) N=12,400	-0.0000 (t=0.61) N=21,749
	-0.0001 (t=0.93) N=19,029	-0.0342*** (t=4.55) N=25,764	

***, **, * statistically significant at the 1 percent, 5 percent, 10 percent levels for a two-tailed test.
The results are based on estimating regressions with fixed country and industry effect for the sample partitioned by median total management score and median shareholder protection rights.

CONCLUSION

This study investigates the association between inventory production and sales change information in an international context. Using twenty countries with different management control practice scores and shareholder protection degrees, we show that although future sales information are generally associated with current period inventory production, the degree of such association differs across firms with different country characteristics. This study attempts to use cross-sectional data to learn what firms do internally and how it varies across countries. A future field research on this subject in a real world business will be an interesting addition. In addition, the results inference is limited by the fact that we are not able to obtain the budgeted future sales numbers and instead use the actual future sales as a proxy.

A few extensions can be conducted in the future. For example, we can further study whether production decision precision, i.e., overproduction is related to the interaction between the type of (past or future) information used and the country level variables. Future research can also extend to compare whether there is a difference in information used in short-term production and long-term production.

We can also extend this research to other accounting information and other management accounting practices. There are other contexts where firms have the option to use either past or future accounting information in the management accounting practices. For example, Shields et al. (1991) show that Japanese firms focus on future performance while US firms rely on currently attainable and average past performance to set standards.

REFERENCES

Abarbanell, J. & Bushee, B. (1997). Fundamental analysis, future earnings and stock prices. *Journal of Accounting Research,* 35(1), 1-24.

Alan, Y., Gao, G. P. & Gaur, V. (2012). *Does inventory productivity predict future stock returns? A retailing industry perspective.* Working Paper.

Anthony R., & Govindarajan, V. (2006). *Management control systems* (12th ed.). Boston: McGraw-Hill Education.

Ball, R., Kothari, S. P., & Robin, A. (2000). The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics, 29*(1), 1-51.

Ball, R., Robin, A. & Wu, J. S. (2003). Incentives versus standards: Properties of accounting income in four East Asian countries. *Journal of Accounting and Economics, 36*, 235-270.

Banker, R. D., Byzalov, D. & Threinen, L. (2013). *Determinants of international differences in asymmetric cost behavior.* Working Paper. Retrieved from http://astro.temple.edu/~dbyzalov/global.pdf

Bloom N. & Van Reenen, J. (2010). Why do management practices differ across firms and countries? *Journal of Economic Perspectives, 24*(1), 203-224.

Bloom N., & Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *Quarterly Journal of Economics 122*(4), 1341-1408.

Bloom, N., Genakos, C., Sadun, R. & Van Reenen, J. (2012). *Management practices across firms and countries.* Working Paper No. 12-052. Retrieved from https://www.hbs.edu/faculty/Publication%20Files/12-052.pdf

Bouillon M. L., Ferrier, G. D., Stuebs, M. T. & West, T. D. (2006). The economic benefit of goal congruence and implications for management control systems. *Journal of Accounting and Public Policy, 25*(3), 265-298.

Bruggen, A., Krishnan, R. & Sedatole, K. L. (2011). Drivers and consequences of short-term production decisions: Evidence from the auto industry. *Contemporary Accounting Research*, *28*(1), 83-123.

Chen, H., Frank, M. Z. & Owen, Q. W. (2005). What actually happened to the inventories of American companies between 1981 and 2005? *Management Science, 51*(7), 1015-1031.

Chenhall, R. H. (2003). Management control systems within its organizational context: findings from contingency-based research and directions for the future. *Accounting, Organizations and Society*, *28*(2/3), 127-168.

Cook, K. A., Huston, G. R. & Kinney, M. R. (2012). *Managing earnings by manipulating inventory: The effects of cost structure and valuation method.* Working Paper. Retrieved from http://papers.ssrn.com/s ol3/papers.cfm?abstract_id=997437

Dharwadkar, B., George, G. & Brandes, P. (2000). Privatization in emerging economies: An agency theory perspective. *Academy of Management Review*, *25*(3), 650-669.

Djankov, S. R. La Porta, Lopez-de-Silanes, F. & Shleifer, A. (2008). The law and economics of self-dealing. *Journal of Financial Economics*, *88*, 430-465.

Fullerton, R. R., Kennedy, F. A. & Widener, S. K. (2014). Lean manufacturing and firm performance: The incremental contribution of lean management accounting practices. *Journal of Operations Management*, *32*, 414-428.

Fullerton, R. R., McWatters, C. S. & Fawson, C. (2003). An examination of the relationships between JIT and financial performance. *Journal of Operations Management*, *21*(4), 383-404.

Gerdin, J. & Greve, J. (2004). Forms of contingency fit in management accounting research – A critical review. *Accounting, Organizations and Society,* 29(3/4), 303-326.

Gupta, M., Pevzner, M. & Seethamraju, C. (2010). The implications of absorption cost accounting and production decisions for future firm performance and valuation. *Contemporary Accounting Research,* 27(3), 889-922.

Hopper, T., Tsamenyi, M., Uddin, S. & Wickramasinghe, D. (2009). Management accounting in less developed countries: What is known and needs knowing. *Accounting, Auditing & Accountability Journal, 22*(3), 469-514.

http://www.imanet.org/PDFs/Public/MAQ/2007_Q2/2007MAQ_spring_krumwiede.pdf.

Ittner, C. D. & Larcker, D. F. (2001). Assessing empirical research in managerial accounting: A value-based management perspective. *Journal of Accounting and Economics, 32*(1-3), 349-410.

Jiambalvo, J., Noreen, E. & Shevlin, T. (1997). Incremental information content of the change in percent of production added to inventory. *Contemporary Accounting Research, 14*(1), 69-97.

Krumwiede, K., & Suessmair, A. (2007). Comparing U.S. and German cost accounting methods. *Management Accounting Quarterly, 8*(3), 1-9.

La Porta, R., Lopez-de-Silanes, F. & Shleifer, A. & Vishny, R. (2000). Investor protection and corporate governance. *Journal of Financial Economics,* 58(1/2), 3-27.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R. (1997). Legal determinants of external finance. *The Journal of Finance*, *52*(3), 1131-1150.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R. (1998). Law and finance. *Journal of Political Economy, 106*,1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R. (2002). Investor protection and corporate valuation. *The Journal of Finance,* 57(3), 1147-1170.

Lev, B. & Thiagarajan, R. (1993). Fundamental information analysis. *Journal of Accounting Research 31*(3), 190-215.

Macarthur, J. B. (2006). German Versus U.S. management accounting practices. *Management Accounting Quarterly*, *7*(2), 10-16.

Otley, D. T. (1980). The contingency theory of management accounting: achievement and prognosis. *Accounting, Organizations and Society, 5*(4), 413-428.

Otley, D. T. (2016). The contingency theory of management accounting and control: 1980-2014. *Management Accounting Research, 31*, 45-62.

Pong, C. & Mitchell, F. (2012). Inventory investment & control: How have UK companies been doing? *The British Accounting Review, 44*, 173-188.

Roychowdhury, S. (2006). Management of earnings through the manipulation of real activities that affect cash flow from operations. *Journal of Accounting and Economics, 42*(3), 335-370.

Shields M. D., Chow, C. W., Kato Y., & Nakagawa, Y. (1991). Management accounting practices in the U.S. and Japan: Comparative survey findings and research implications. *Journal of International Financial Management and Accounting, 3*, 61-77.

Strauss, E., & Zecher, C. (2013). Management control systems: A review. *Journal of Management Control,* 23(4), 233-268.

Thomas, J. K., & Zhang, H. (2002). Inventory changes and future returns. *Review of Accounting Studies, 7*, 163-187.

Young, C., Peng, C., Chien, C. & Tsai, L. (2014). Does SFAS No. 151 trigger more overproduction? *Journal of Management Accounting Research*, *26*(1), 121-143.

Zimmerman, J. (2013). *Accounting for decision making and control.* (8th ed.). New York, NY: McGraw-Hill Education.