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Why Do Firms Delay Recalls?

The Effects of Firm Type and Country of Origin on Time to Recall Defective Toys in the US.

-Sejal Tiwari

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Agenda

- **Literature Review**
  - Research Gap
  - Theoretical Perspective
- **Hypotheses Development**
  - Time to Recall
- **Methodology**
  - Results
- **Contribution**
  - Implications
  - Future Research

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Literature Review

Globalization = complex supply chain

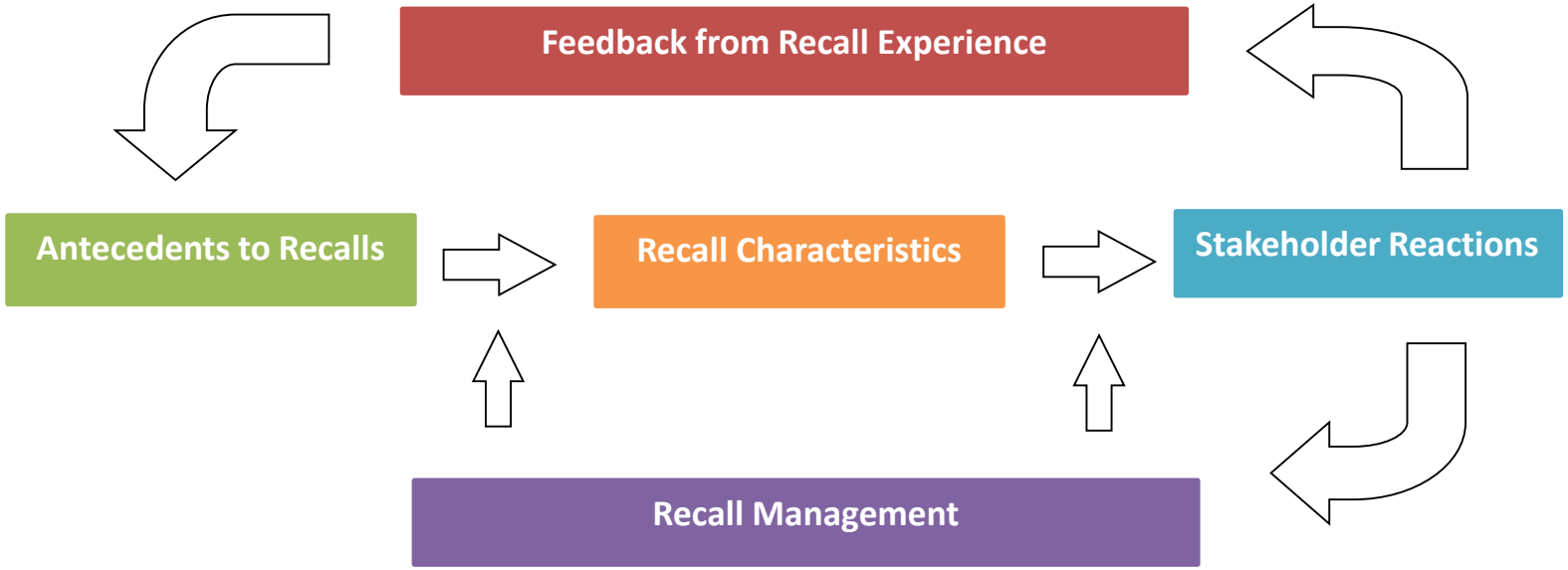
Complex supply chain = Risk of safety standardization

Risk of safety standardization = can cause death or harm (Chu, Lin, and Prather, 2005).

In United States, CPSC may require to (in)voluntarily recall.

Cost estimated > $ 919 million annually in the U.S. (CPSC, 2017)

Research Gap



- In 2013, an estimated 41,200 deaths and $39.8 million medically treated injuries were associated with consumer products under CPSC's jurisdiction. *(The Consumer Product Safety Commission's Revised Injury Cost Model, 2018)*

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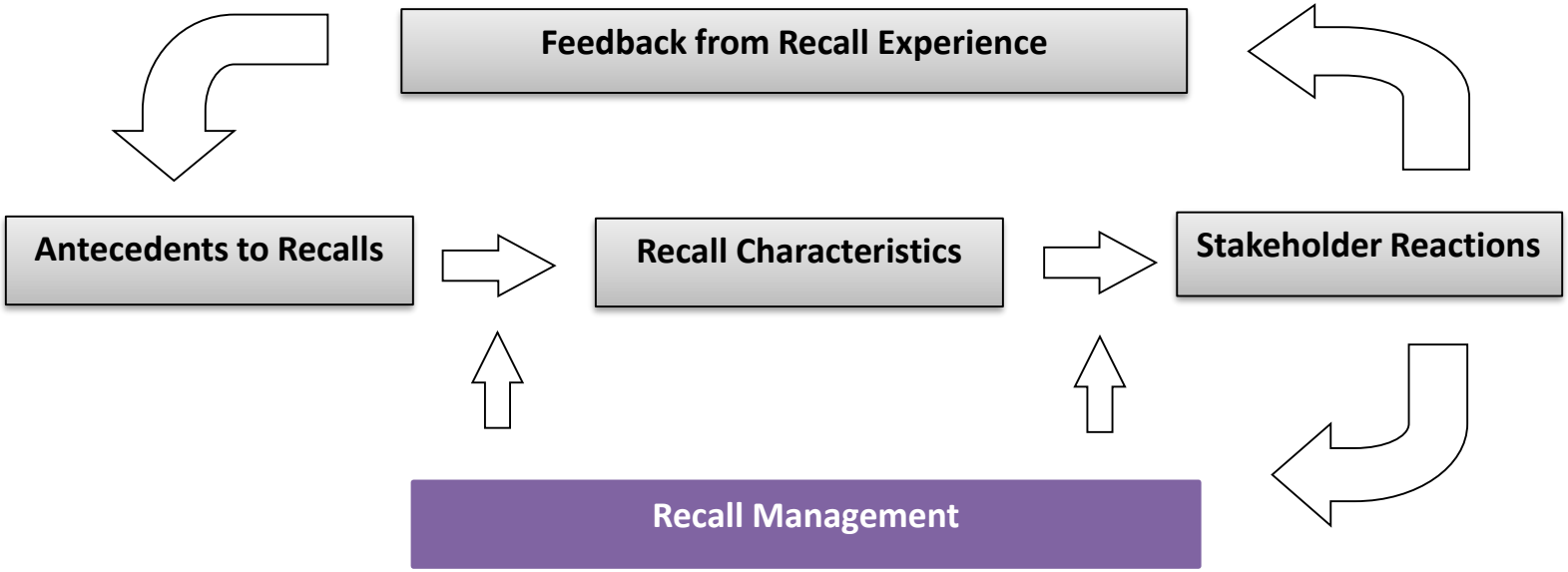
Research Gap



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Research Gap

- **Product Recall:**
  - Recall Management:
    - **Time to recall, Remedy,** Communications, Reverse Logistics

Table 1: Literature on Time to Recall		
Authors	**Outcome Studied**	**Predictor / Context**
Hora et al. 2011	Time to recall	Design, supply chain position, recall strategy
Muralidharan et al., 2015	Time to recall	Country of import
Eilert et al., 2017	Time to recall	Severity and brand characteristics
Ni & Huang, 2018	Time to recall	External, suppliers, design, models, experience
Majid & Bapuji, 2018	Time to recall	Country of import

Organizational & Environmental Factors that influence crisis management response *(Rhee & Valdez, 2009)*

Research Question

"Why do some product recalls get delayed"

- Specifically focusing on the reason of difference in **time taken to recall defective products** by **different types of firms** with a **global supply chain**?

Industry

Country

2007-2018

Time

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Theoretical Perspective

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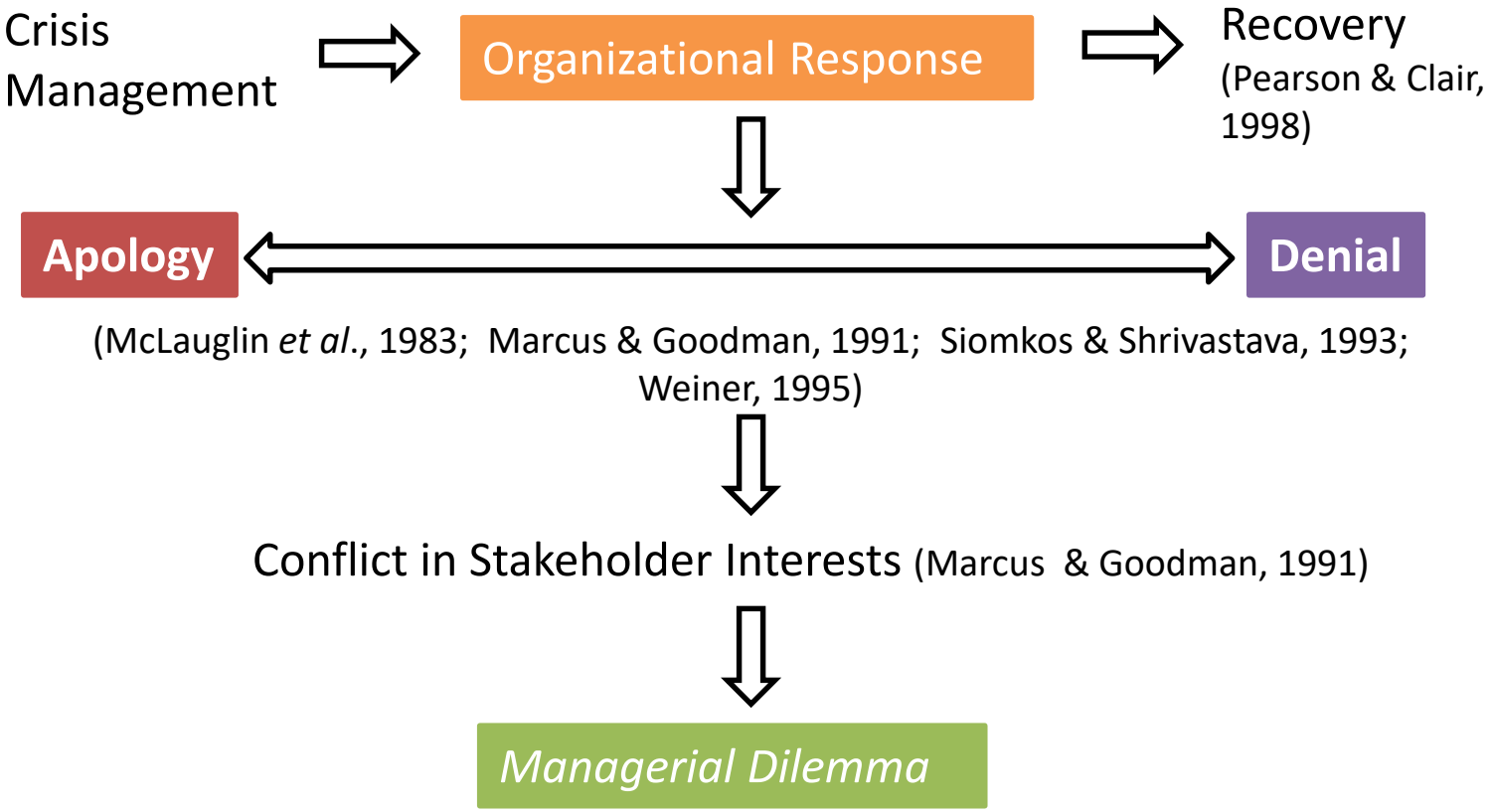
Theoretical Perspective



Signaling Theory, Attribution of blame theory and Stakeholder salience model to understand Managerial Dilemma for ***time to recall decisions***

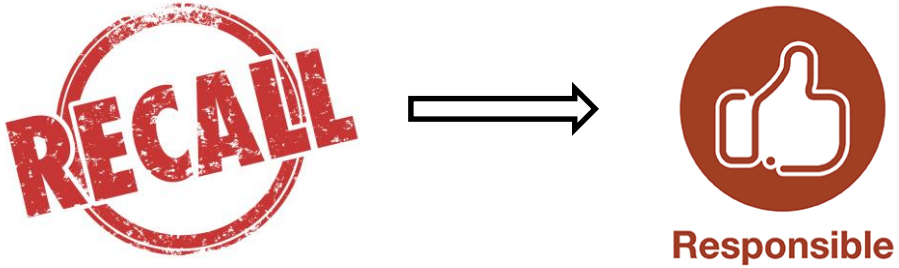
Theoretical Perspective

Time to Recall Decisions

⇩

Responsibility for Recall Crisis

(Davidson & Worrel, 1992; Smith, Thomas, & Quelch, 1986; Chen , Ganesan , & Liu , 2009; Hora *et al*., 2011)



Faster recalls ***signal*** higher responsibility for crisis

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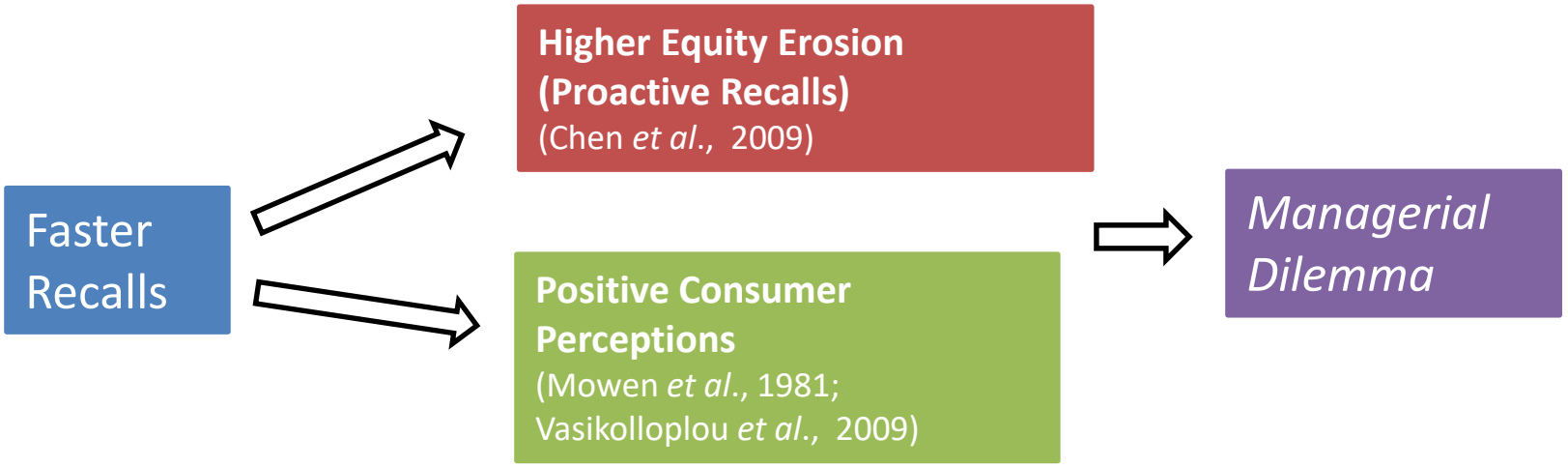
Theoretical Perspective



While extant research says that managerial decisions tend to be in favor of ***shareholders : I am using the stakeholder salience model to explain my hypotheses***

(Jenson & Meckling, 1976; Fama, 1981; Shliefer & Vishny, 1997; Jordi, 2010; Segrestin & Hatcheul, 2011)

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Hypothesis Development

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Hypothesis Development

- Publicly traded firm, consumers become the more salient party because potential harm makes their demands urgent and legitimate (Bapuji, 2012)

- Accordingly, these firms try to issue a recall quickly to signal to consumers that the firm values consumer welfare

Hypothesis 1: Publicly traded firms recall defective products faster than privately held firms.

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Hypothesis Development

- The country of origin of the suppliers in a global supply chain can have stereotypes associated with the quality of products (Samiee, 1994).
- Firms attribute product recalls driven by defect to be the overall perceived quality of the suppliers in the country from where they are sourced.
- Firms use self-serving attributions and blame it on the perceptions of foreign supplier's quality to their advantage in crisis situations (Bapuji and Beamish, 2007 ;Chen, 2007).

Hypothesis 2: Firms recalls faster defective products sourced from countries with low country of origin image.

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Hypothesis Development

- Stakeholder versus shareholder predominance can alter the time taken to recall which in turn, signals acceptance or denial of responsibility (Hartman, 1987).

- However, the extent of accountability can be mended, given the country of origin of the supply chain players.

Hypothesis 3: Country of origin image moderates the relationship between firm type and time to recall i.e. Publicly traded firms recall faster than privately held firms, products imported from countries with low country of origin image

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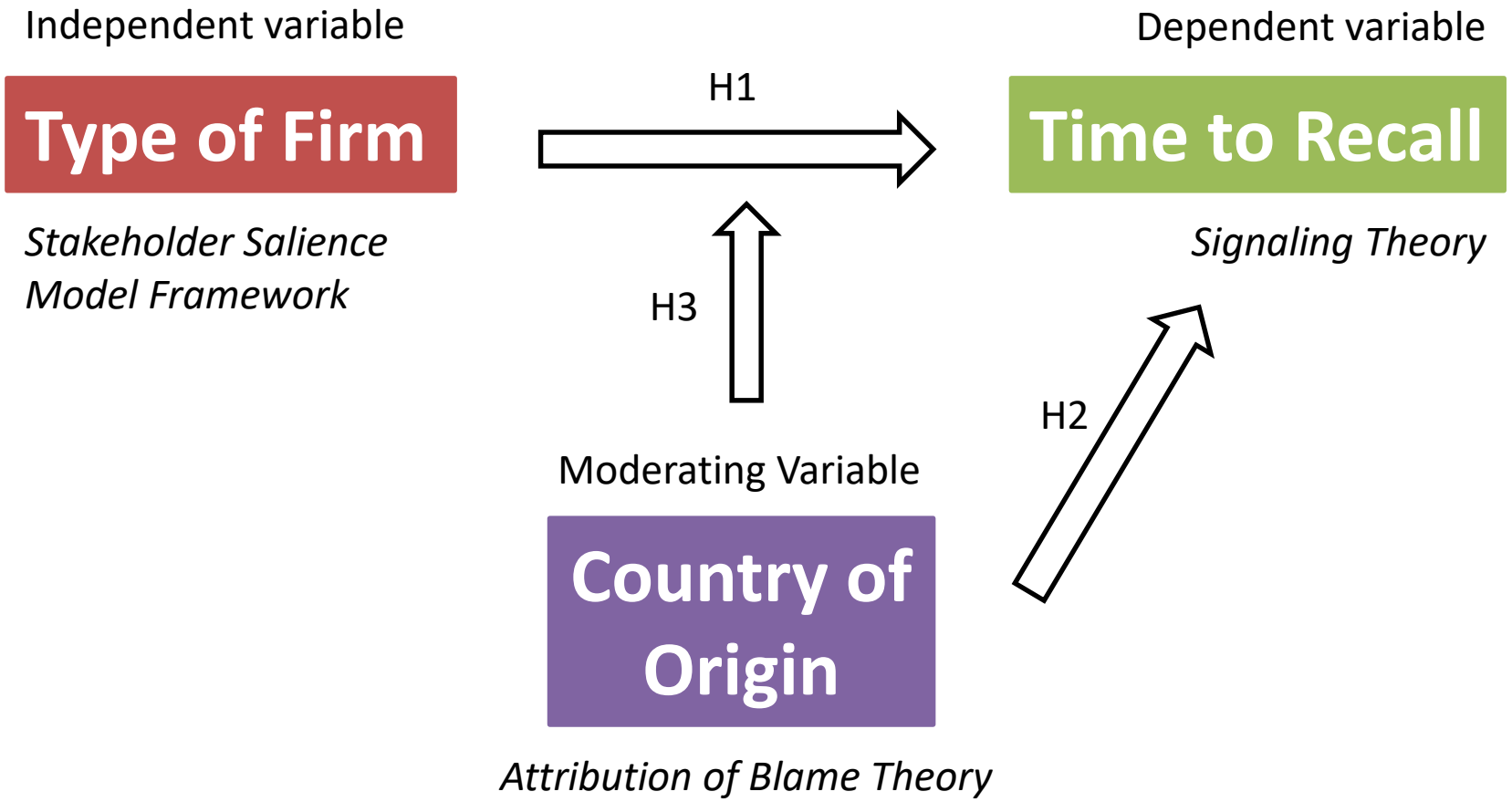
Operationalization of variable



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Research Methods

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Example

i play Recalls Infant Rattles Due to Choking Hazard

Recalled Green Sprouts flower rattle

Name of product:
Infant rattles

Hazard:
Pieces of the rattle can detach, posing a choking hazard to infants.

Remedy:
Refund

Recall date:
October 25, 2018

Units:
About 6,100 (in addition, about 30 were sold in Canada)

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Example

Recall Details

In Conjunction With:

Description:
This recall involves the Green Sprouts brand flower rattle made from wood. The recalled multi-colored rattles are made from natural wood and measure 2.5 inches long by 2.5 inches wide by 4 inches high. Attached to the circular handle are three round wooden balls shaped like flowers, including one that contains a silver metal bell, all attached with an elastic cord. “Green Sprouts,” “Made in Taiwan” and a date code number (14714 or 21815) are printed on the circular rattle handle.

Remedy:
Consumers should immediately take the recalled rattles away from children, stop using them and contact i play for instructions on how to receive a $50.00 coupon code to redeem towards the purchase of new products and shipping costs.

Incidents/Injuries:
i play has received three reports of pieces detaching from the rattle. No injuries have been reported.

Sold At:
Whole Foods Market stores and other stores nationwide and online at Amazon.com and other websites from December 2014 through October 2018 for about $15.

Manufacturer(s):
Gogo Toys Co. LTD, of Taiwan

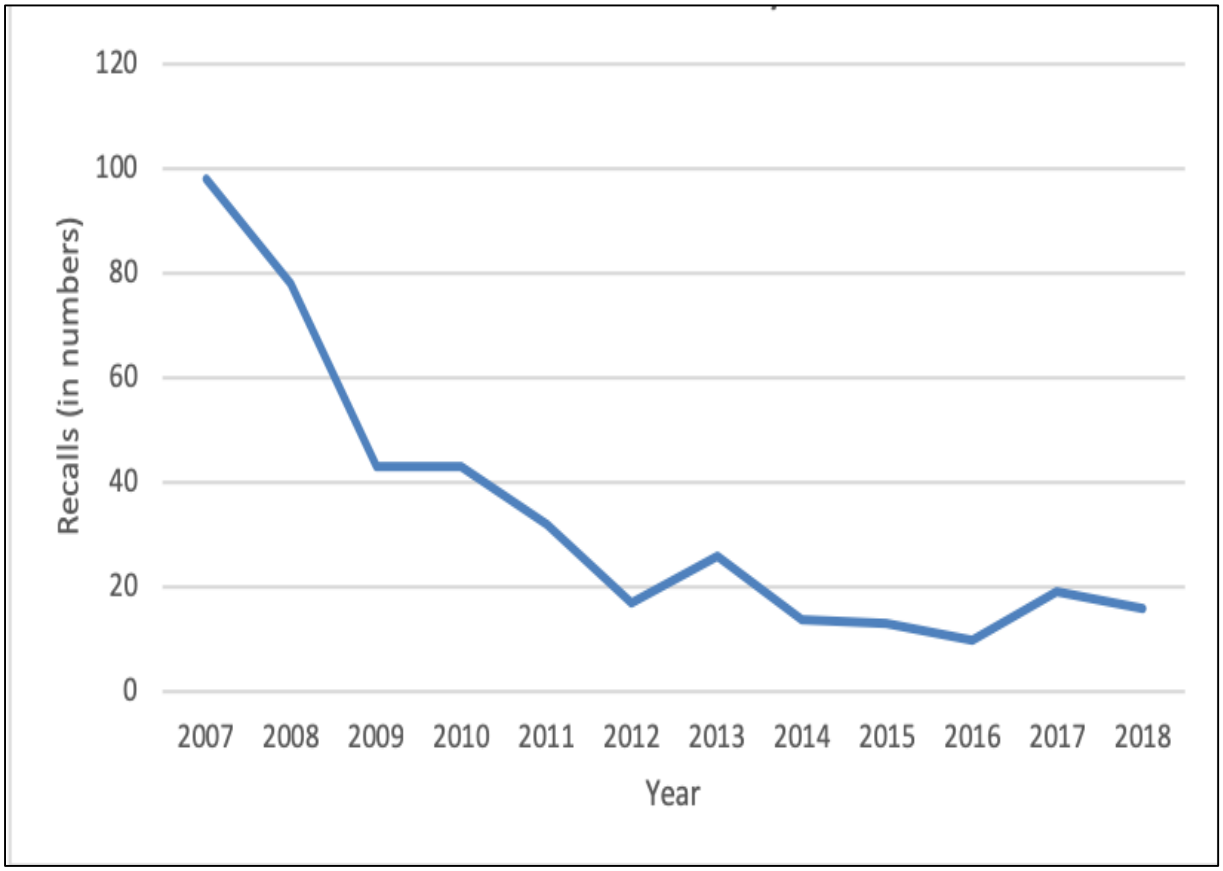
Importer(s):
i play. inc., of Asheville, N.C.

Distributor(s):
Frontier Natural Products Co-op of Norway, Iowa and Imperial Distributors, of Worcester, Mass.

Manufactured In:
Taiwan

Recall number:
19-024

Recall distribution



According to CPSC's 2017 annual report, **3** deaths and **249,673** treatable hospital emergencies was reported with the use of toys.

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Research Methods

Data Methods		
Variable	**Source**	**Method**
Time to recall	CPSC recall notices	Coded as per Hora et al., 2011
Public Company	NASDAQ / Company Website	Dummy Variable (Stock Exchange)
Country of Origin Image	Global Competitive Reports: World Economic Forum	Reverse coded as per data from GCR

Time to Recall: Number of days elapsed from the time a product was first sold in the market to the date it was recalled *(Hora et al., 2011)*

SOLD FROM (DATE) – DATE OF RECALL

- **Time Frame:** 2007-2018
- **Number of results:** 404
- **Number of firms:** 199
- **Number of countries:** 12 individual manufacturing countries; 8 combined
- **Average number of units:** 424,712
- **Average price:** > $11 million

Research Methods

	China	Germany	Hong Kong	India	Indonesia	Japan	Mexico	Nepal	Taiwan	Thailand	Trinidad	United States
2018	5.0	3.7	4.1	5.2	4.9	3.4	4.9	6.1	4.2	5.2	5.3	3.7
2017	4.9	3.4	3.7	4.9	5.0	3.2	4.6	5.9	4.1	5.1	5.1	3.7
2016	5.4	3.7	4.1	5.4	5.5	3.5	5.0	6.2	4.4	5.3	5.4	4.2
2015	5.3	3.8	4.4	5.6	5.5	3.6	5.1	6.2	4.3	5.3	5.5	4.2
2014	5.0	3.5	4.0	5.1	5.0	3.4	4.6	6.1	3.9	4.6	5.3	4.0
2013	5.2	3.6	4.3	5.2	5.1	3.6	4.7	6.1	4.1	4.8	5.4	4.2
2012	5.3	3.9	4.7	5.4	5.4	3.7	5.1	6.2	4.2	5.0	5.4	4.4
2011	4.9	3.4	4.2	5.0	5.0	3.4	4.9	6.2	3.9	4.6	5.0	4.0
2010	4.9	3.4	4.2	4.7	5.0	3.5	4.8	6.3	4.1	4.7	5.2	3.9
2009	5.3	3.6	4.4	4.8	5.2	3.7	5.1	6.4	4.3	4.8	5.6	4.0
2008	5.7	3.5	4.3	4.9	5.3	3.7	5.3	6.5	4.2	5.0	5.5	4.2
2007	5.7	3.4	4.1	4.6	5.7	3.5	5.5	6.5	4.1	5.0	5.5	3.9

- "In your country, how do you assess the quality of local suppliers? [1 = extremely poor quality; 7 = extremely high quality]".
- **Reverse coded** for operationalization sake.
- Now, 1 = extremely high quality; 7 = extremely poor quality

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Results

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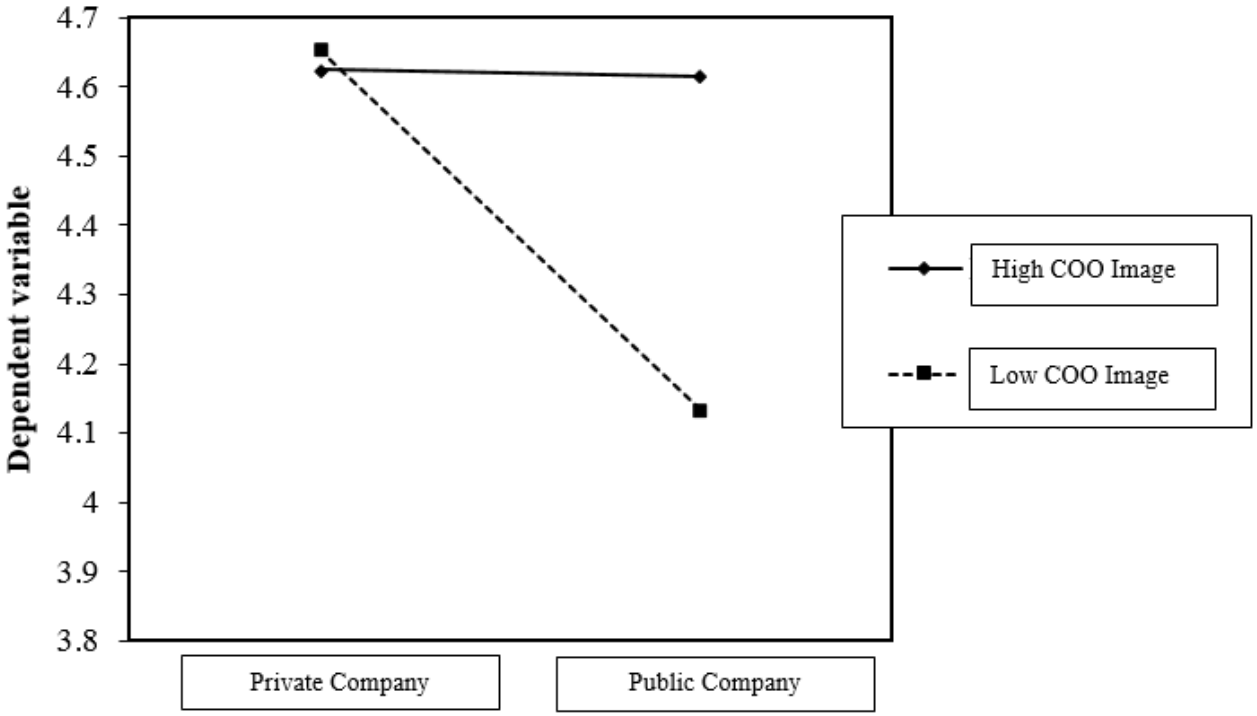
Results: OLS Reg.

Variable	Model 1	Model 2	Model 3
N	400	400	400
(Constant)	4.604***	6.025***	4.821***
	(2.72)	(.724)	(.842)
Quantity	.106***	.117***	.124***
	(.023)	(.023)	(.023)
Price	.059	.045	.049
	(.046)	(.046)	(.046)
Experience	-.011	.007	.012
	(.021)	(.021)	(.021)
Severity	-.041	-.027	-.034
	(.039)	(.039)	(.039)
Design	.263*	.228*	.211*
	(.109)	(.109)	(.108)
Supply Chain Players: Companies	.396**	.289*	.268*
	(.126)	(.130)	(.129)
Supply Chain Players: Distributors	.42*	.243	.232
	(.133)	(.139)	(.138)
Publicly Traded Company		-.267*	2.524*
		(.118)	(1.027)
Country of Origin Image		-.253*	-.042
		(.121)	(.143)
Public Traded Company x Country of Origin Image			-.538**
			(.197)
Year Dummies	Yes	Yes	Yes
F-Value	3.498	3.626	3.896
R2	.142	.161	.177
R2 Change		.116	.131

Results: Interaction



- Publicly traded firms will recall products faster when the country of origin image of the local supplier is lower.

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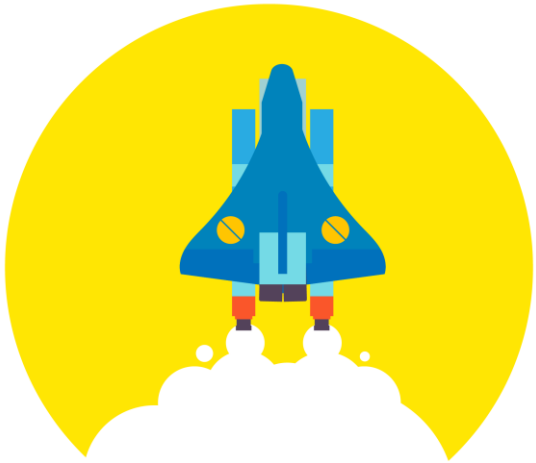
Discussion: Contribution, Limitation and Future Research

Contribution

- Contribution to product recalls literature
  - Factors that influence time to recall decisions
- Addressing gap in crisis management literature
  - Factors that influence crisis management decisions
- Crises management conditions under which firm's responses to stakeholders might vary



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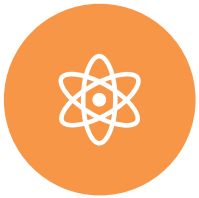
Implications

MANAGERIAL ACTIONS IN DILEMMA

ETHICAL PERSPECTIVES

LONG TERM PERSPECTIVES

APPROPRIATE COMMUNICATION TO SHAREHOLDERS



REGULATORS

SAFETY POLICY

CONDITIONS TO INCREASE VIGILANCE FOR CONSUMER SAFETY

FACILITATE COMMUNICATION BETWEEN FIRMS AND SHAREHOLDERS

Limitation

- Limited Geographical and Industrial context.
  - Generalizability
- Time period
  - 2007-2018
- Time to Recall limitation
  - May not capture when the defect was first identified.
  - Who identified it (consumer report vs internal audits)

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Future Research

- Qualitative Research-Interviews with executives from recalling companies to triangulate my study. Difficult to get interviews.
- Longitudinal study of leading PTCs, to see whether there is are differences in such crisis management decisions in the short term and long term.
- Examine the study through the behavioural theory perspective of the firm.
- Extend the study to empirically check in the Food industry and Auto industry- to see whether nature of product has a bearing on such crisis management decision making.

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Thank you

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Back Up Slides

Results: OLS Reg.

- ↑ HIGH PTC = ↓ LOW TTR
  - HIGH = public firm = lower time taken to recall (Fast recall)
  - LOW = private firm = Higher time taken to recall (Slower recall)
  - **Therefore, Hypothesis 1 stands true**

Original	Reverse Coded
1 = Bad perceived quality	1 = Good perceived quality
7 = Good perceived quality	7= Bad perceived quality

- ↑ HIGH COO = ↓ LOW TTR
  - HIGH = Bad perceived quality = lower time taken to recall (Fast recall)
  - LOW = Good perceived quality= Higher time taken to recall (Slower recall)
  - **Therefore, Hypothesis 2 stands true**

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Results: Correlation

No.	Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1	Time to Recall	6.01	0.99	1									
2	Quantity	9.44	2.4	.262**	1								
3	Price	2.76	1.17	0.095	0.021	1							
4	Experience	1.33	2.51	0.065	.239**	0.054	1						
5	Severity	1.18	1.52	.137**	.410**	.328**	.127*	1					
6	Design	0.6	0.49	.166**	.155**	.156**	.136**	.351**	1				
7	SCP: Company	0.46	0.5	.165**	.191**	.338**	.253**	.264**	.148**	1			
8	SCP: Distributor	0.3	0.46	-0.011	-.112*	-.294**	-.259**	-.128*	-.159**	-.597**	1		
9	Public Company	0.34	0.47	-0.048	.305**	0.014	.335**	.120*	0.033	0.036	-.268**	1	
10	COO	5.21	0.5	-.147**	0.055	-.234**	0.035	-0.055	-.237**	-.124*	0.063	0.057	1