On the Effect of Wal-Mart's Sales Disclosure on Supplier Performance

ABSTRACT

This paper investigates whether and how the change of a dominant retailer's sales information disclosure affects supplier performance. Specifically, we focus on an important retailer performance index, the monthly Comparable Store Sales Index (CSS) index, and empirically test suppliers' financial performance when Wal-Mart withdraws monthly CSS index. We found that the cease of Wal-Mart's monthly CSS disclosure is associated with negative supplier abnormal returns. However, the cease of dominant retailer's monthly CSS disclosure does not hurt all suppliers equally: the negative financial response is stronger for suppliers with higher sales volatility but weaker for suppliers which also serve other retailers in the same category. Finally, the withdrawal of Wal-Mart monthly CSS is also associated with higher supplier inventory volatility for those who only serve Wal-Mart.

Keywords: Monthly Comparable Store Sales, Wal-Mart, Operation-Finance Interface, Event Study.

1. Dominant Retailer CSS Withdrawal on Supplier Performance

H_1: The withdrawal of Wal-Mart monthly CSS announcement will increase the abnormal returns of suppliers serving multiple retailers in the same category relative to those serving Wal-Mart only.

(Main test: Abnormal Returns);

(Other robust tests: ROA and Supply chain Sales）;

TABLE 1: Cross-Sectional Analysis of the Cumulative Abnormal Returns of Walmart Suppliers (after Walmart Monthly CSS Withdrawal)

	Abnormal Returns
Serving Others	0.032**(0.016)
Sales Volatility	-0.028** (0.013)
ROA	0.131 (0.164)
R&D	1.096** (0.570)
Market Share	-0.025 (0.023)
Durable Good	-0.037** (0.018)
Relationship Duration	-0.00006 (0.0010)
Supply Chain Sales Percentage	0.037 (0.058)
Intercept	-0.005 (0.011)
N	103
R-square	0.174

TABLE 2: The Impact of Walmart CSS Withdrawal on Supplier's Return-on-Assets

	ROA
Treat	-0.006*(0.003)
After	0.005***(0.002)
Treatment*After	0.008*(0.005)
N	2935

R-sq	0.006

Notes: Treatment group: Walmart Suppliers also serve Target; Control group: Walmart Suppliers only serve Walmart; After: [1Q, 12Q]; Before: [-12Q,-1Q];

TABLE 3: The Impact of Walmart CSS Withdrawal on Supplier's Supply Chain Sales

	WM SC Sales 1	WM SC Sales 2	WM SC Segment No.
Treat	0.007 (0.052)	0.014 (0.014)	-0.093*** (0.021)
After	-0.009 (0.029)	-0.014 (0.009)	0.001 (0.031)
Treatment*After	0.124** (0.064)	0.033* (0.019)	0.095* (0.062)
N	780	780	655
R-sq	0.007	0.012	0.005

Notes: 1. Treatment group: Walmart Suppliers also serve Target; Control group: Walmart Suppliers only serve Walmart; After: [1Y,3Y]; Before: [-3Y,-1Y]; 2. Because of missing data issue, we use two methods to code the supply chain sales for each customer: WM SC Sales1—we coded 1 for the year when Walmart being a major customer; 0 for Walmart not being a major customer; WM SC Sales2—we use the actual supply chain sales figure (SC sales /total sales) when Walmart being a major customer; For the missing data, we use the sample mean of SC sales percentage to replace the missing value when Walmart being the major customer but having the missing data; and we use 0.05 to replace the missing value when Walmart not being the major customer; No. Seg for WM SC—the number of segments the supplier serving for the major customer;

2. The Mechanism

(Information-value view for retailer monthly CSS withdrawal)

1. Direct effect: The retailer's monthly CSS information provides valuable information, which facilitates those suppliers to plan their inventory. After the cease of monthly CSS information, suppliers serving Wal-Mart only will lose the information source and, thus, the performance will be negatively affected. However, the suppliers with other ties (such as serving other retailers) can still infer the demand information based on their other connections and on other retailers' monthly CSS information. These extra ties might create an extra competitive advantage for those suppliers. Thus, the performance of those retailers will be less negatively affected and might even turn into positive.

2. Indirect effect: The retailer's monthly CSS information has value. The withdrawal of monthly CSS information increases Wal-Mart's capability to use CSS information as a commodity to gain favor with suppliers, who in turn to feel pressure to lose some bargaining power in order to gain access to those information. However, the suppliers with multiple ties are facing less pressure since they have extra information source. Thus, the performance of those retailers will be less negatively affected.

(Signaling-view of retailer monthly CSS stoppage)

3. Monthly CSS withdrawal has no information value but can serve as a signal of deteriorating retailer performance in the future, which will also in turn affect its supplier's performance. However, those suppliers with multiple ties depend less on Wal-Mart, and they have other sales avenues from other retailers, whose performance might even improve after Wal-Mart's CSS withdrawal. Thus, the performance of suppliers with multiple ties will be less negatively affected.

(Test for information-value view)

H_2: Wal-Mart withdraws monthly CSS announcement will decrease the inventory/ sales volatility of suppliers serving other retailers in the same category relative to those serving Wal-Mart only.

If monthly CSS information has value, its withdrawal will lead to uncertainties on supplier's inventory planning, which will increase the inventory volatility, especially for those suppliers serving Wal-Mart only. Those suppliers with multiple ties will be affected less, and will have lower inventory volatility.

H_3: Suppliers serving other retailers in the same category have more positive abnormal returns when they have high sales volatility relative to the situation when they have low sales volatility after Wal-Mart withdraws monthly CSS announcement.

If monthly CSS has value for suppliers, it is more valuable when the demand side information is harder to predict.

(Test for signaling view)

H_4: Wal-Mart withdraws monthly CSS announcement will create no difference on inventory/sales volatility between suppliers serving other retailers in the same category and those serving Wal-Mart only.

H_5: Suppliers serving other retailers in the same category have more positive abnormal returns when they have low Walmart-supply chain sales relative to the situation when they have high Walmart-supply chain sales after Wal-Mart withdraws monthly CSS announcement.

If the signaling view is true, Wal-Mart supplier chain sales percentage will further moderate the relationship between supply-ties and supplier performance. Suppliers with lower Walmart supply chain sales

TABLE 4: Consequences of Walmart Stoppage on Walmart Supplier Operating Performance

	Sales Vol	**Inventory Vol**
Treat	0.183***(0.015)	0.183**(0.016)
After	-0.019**(0.008)	-0.003(0.009)
Treatment*After	-0.090***(0.022)	-0.118***(0.023)
N	2964	2650
R-sq	0.062	0.053

Notes: Treatment group: Walmart Suppliers also serve Target; Control group: Walmart Suppliers only serve Walmart; After: [1Q, 12Q]; Before: [-12Q,-1Q];

TABLE 5: Cross-Sectional Analysis of the Cumulative Abnormal Returns of Walmart Suppliers (after Walmart Monthly CSS Stoppage)

	Model 2	Model 3

Serving Others	0.001 (0.035)	-0.028 (0.022)
Sales Volatility	-0.028** (0.013)	0.181** (0.070)
Serving Others*Sales Vol		0.208*** (0.067)
Serving Others*Sales Dependence	0.133 （0.137）	
ROA	0.160 (0.164)	0.036 (0.184)
R&D	1.128** (0.606)	0.652 (0.509)
Market Share	-0.021 (0.023)	-0.017 (0.025)
Durable Good	-0.038** (0.018)	-0.041** (0.018)
Relationship duration with Walmart	0.00002 (0.0010)	0.0006 (0.010)
Supply Chain Sales Percentage	0.005 (0.068)	-0.0036 (0.064)
Intercept	0.0002 (0.013)	-0.030 (0.023)
N	103	103
R-square	0.182	0.250

3. The Impact of Target monthly CSS Stoppage

H_6: Target's withdrawals of monthly CSS announcement will increase the supplier inventory/sales volatility by suppliers serving other retailers in the same category relative to those serving Wal-Mart only.

H_7: Suppliers serving other retailers in the same category have more negative abnormal returns when they have high sales volatility relative to the situation when they have low sales volatility after Target withdraws monthly CSS announcement.

After Target monthly CSS stoppage, Wal-Mart's suppliers who have multiple ties lose the extra information source. Thus, we argue that consistent with information value view, multiple-tier supplier's inventory volatility will increase. In the similar vein, the negative impact of losing extra information source on supplier performance will get stronger when the sales information is harder to predict.

Target Stoppage

TABLE 4: Cross-Sectional Analysis of the Cumulative Abnormal Returns of Walmart Suppliers (After Target Stoppage)

	Model 1	Model 2
Serving Others	0.007	0.032**
	(0.007)	(0.016)
Sales Volatility	-0.008	0.002
	(0.009)	(0.009)
Serving Others*Sales Vol		-0.097**
		(0.050)
ROA	0.189**	0.244***
	(0.084)	(0.081)
R&D	0.236	-0.065
	(0.458)	(0.294)
Market Share	-0.029**	-0.042***
	(0.012)	(0.013)

Durable Good	0.003 (0.005)	0.004 (0.005)
Relationship duration with Walmart	-0.0005* (0.0003)	-0.0003 (0.0003)
Supply Chain Sales Percentage	-0.015 (0.023)	-0.011 (0.023)
Intercept	0.004 (0.005)	-0.030 (0.023)
N	102	102
R-square	0.131	0.222

Table 5: Consequences of Target Stoppage on Walmart Suppliers' Operating Performance & SC Sales

	ROA	Sales Vol	Inv. Vol	WM SC sales1	WM SC Sales2	WM SC Seg no
Treat	0.002 (0.004)	0.021* (0.012)	0.014 (0.009)	0.076* (0.044)	0.048** (0.015)	0.058 (0.065)
After	-0.0002 (0.003)	-0.023** (0.009)	-0.012 (0.009)	-0.217** (0.035)	-0.039*** (0.007)	0.048 (0.045)
Treat*After	-0.013** (0.006)	0.051*** (0.018)	0.008 (0.014)	-0.065 (0.081)	-0.014* (0.008)	-0.061 (0.094)
N	2782	2780	2320	744	744	537
R-sq	0.003	0.010	0.002	0.067	0.073	0.003

Notes: Treatment group: Walmart Suppliers also serve Target; Control group: Walmart Suppliers only serve Walmart;

After: [1Y, 3Y]; Before: [-3Y,-1Y] for SC sales analysis；

After: [1Q, 12Q]; Before: [-12Q,-1Q] for operating performance analysis；

Hypotheses:

H_1: The monthly CSS withdrawal announcement of Wal-Mart has a negative impact on suppliers' abnormal returns.

H_{2a}: Suppliers serving other retailers in the same category have a less negative impact on their abnormal stock returns after Wal-Mart withdraws monthly CSS announcement.

H_{2b}: Suppliers with higher sales volatility have a more negative impact on their abnormal stock returns after Wal-Mart withdraws monthly CSS announcement;

H_3: Suppliers serving other retailers in the same category have more positive abnormal returns when they have high sales volatility relative to the situation when they have low sales volatility after Wal-Mart withdraws monthly CSS announcement.

Moderator 1： sales volatility；

1. Information advantage；【information value】（moderators；inventory；reverse pattern）
2. 【making use of this private information， and threaten the livelihood supplier； supplier lose some bargaining power】

TABLE 1: Cross-Sectional Analysis of the Cumulative Abnormal Returns of Walmart Suppliers (after Walmart Monthly CSS Stoppage)

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Sales Volatility	-0.028** (0.013)	0.181** (0.070)
Serving Others*Sales Vol		0.208*** (0.067)
ROA	0.131 (0.164)	0.036 (0.184)
R&D	1.096** (0.570)	0.652 (0.509)
Market Share	-0.025 (0.023)	-0.017 (0.025)
Durable Good	-0.037** (0.018)	-0.041** (0.018)
Relationship duration with Walmart	-0.00006 (0.0010)	0.0006 (0.010)
Supply Chain Sales Percentage	0.037 (0.058)	-0.0036 (0.064)
Intercept	-0.005 (0.011)	-0.030 (0.023)
N	103	103
R-square	0.174	0.250

Robustness

APPENDIX A (Walmart Stoppage on Walmart's Supplier Operating & SC performance)

Table 2: Consequences of Walmart Stoppage on Walmart Supplier Operating Performance

	ROA	Sales Vol	Inventory Vol
Treat	-0.006* (0.003)	0.183*** (0.015)	0.183** (0.016)
After	0.005*** (0.002)	-0.019** (0.008)	-0.003 (0.009)
Treatment*After	0.008* (0.005)	-0.090*** (0.022)	-0.118*** (0.023)
N	2935	2964	2650
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After	-0.009 (0.029)	-0.014 (0.009)	0.001 (0.031)
Treatment*After	0.124** (0.064)	0.033* (0.019)	0.095* (0.062)
N	780	780	655
R-sq	0.007	0.012	0.005

Notes: 1. Treatment group: Walmart Suppliers also serve Target; Control group: Walmart Suppliers only serve Walmart; After: [1Y,3Y]; Before: [-3Y,-1Y];

2. Because of missing data issue, we use two methods to code the supply chain sales for each customer:
WM SC Sales1—we coded 1 for the year when Walmart being a major customer; 0 for Walmart not being a major customer;
WM SC Sales2—we use the actual supply chain sales figure (SC sales /total sales) when Walmart being a major customer; For the missing data, we use the sample mean of SC sales percentage to replace the missing value when Walmart being the major customer but having the missing data; and we use 0.05 to replace the missing value when Walmart not being the major customer.

No. Seg for WM SC—the number of segments the supplier serving for the major customer;

APPENDIX B （Target Stoppage）

TABLE 4: Cross-Sectional Analysis of the Cumulative Abnormal Returns of Walmart Suppliers (After Target Stoppage)

	Model 1	Model 2
Serving Others	0.007 (0.007)	0.032** (0.016)
Sales Volatility	-0.008 (0.009)	0.002 (0.009)
Serving Others*Sales Vol		-0.097** (0.050)
ROA	0.189** (0.084)	0.244*** (0.081)
R&D	0.236 (0.458)	-0.065 (0.294)
Market Share	-0.029** (0.012)	-0.042*** (0.013)
Durable Good	0.003 (0.005)	0.004 (0.005)
Relationship duration with Walmart	-0.0005* (0.0003)	-0.0003 (0.0003)
Supply Chain Sales Percentage	-0.015 (0.023)	-0.011 (0.023)
Intercept	0.004 (0.005)	-0.030 (0.023)
N	102	102
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	(0.004)	(0.012)	(0.009)	(0.044)	(0.015)	(0.065)
After	-0.0002	-0.023**	-0.012	-0.217**	-0.039***	0.048
	(0.003)	(0.009)	(0.009)	(0.035)	(0.007)	(0.045)
Treat*After	-0.013**	0.051***	0.008	-0.065	-0.014*	-0.061
	(0.006)	(0.018)	(0.014)	(0.081)	(0.008)	(0.094)
N	2782	2780	2320	744	744	537
R-sq	0.003	0.010	0.002	0.067	0.073	0.003

Notes: Treatment group: Walmart Suppliers also serve Target; Control group: Walmart Suppliers only serve Walmart;

After: [1Y, 3Y]; Before: [-3Y,-1Y] for SC sales analysis；

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