

## Online Appendix

### The Value of Collateral in Trade Finance

#### 1 Data

Below I provide additional details on data collection, cleaning, and classification.

##### *1.1 Access to Trade Dataset*

Costello has served in an advisory role to the CEO and management team of Credit2B since 2014, and formally joined their Advisory Board in 2016. Due to this role, she was granted access to the data used in their credit models under a confidentiality agreement, which protects the identities of the debtors and creditors, receivables data, programs, and any other firm-specific information. Non-disclosure agreements were executed between member firms and Credit2B, and between Costello and Credit2B. Under the non-disclosure agreement, Costello is allowed to perform additional analyses on behalf of editors, reviewers, and readers of the Journal. The summarized output of these analyses will be shared subject to Credit2B approval.

##### *1.2 The Treatment Group: Definitions and Case Law*

Both 546(c) and 503(b)(9) apply only to suppliers of goods, thus I characterize the treatment sample as goods suppliers and the control sample as non-goods suppliers. However, BAPCPA does not provide a definition of “goods.” Those courts that have addressed the definition of goods in interpreting Sections 503(b)(9) and 546(c) generally have looked to the definition of “goods” in Section 2-105(1) of the Uniform Commercial Code (“UCC”) and the dictionary definition of “goods.”

The UCC defines goods as follows:<sup>1</sup>

1. “Goods” means all things (including specially manufactured goods) which are movable at the time of identification to the contract for sale other than the money in which the price is to be paid, investment securities (article 8) and things in action. “Goods” also includes the unborn young of animals and growing crops and other identified things attached to realty as described in the section on goods to be severed from realty (section 2107).

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<sup>1</sup>Mich. Comp. Laws Ann. Section 440.2105(1)-(3).

2. Goods must be both existing and identified before any interest in them can pass. Goods which are not both existing and identified are “future” goods. A purported present sale of future goods or of any interest therein operates as a contract to sell.
3. There may be a sale of a part interest in existing identified goods.

There is uniform agreement that vendors of services, even if they are a necessary component to the value of the goods sold, are treated as general unsecured claimants.<sup>2</sup> There is still, however, some gray area on whether certain non-service items can be classified as “goods” under BAPCPA. In those cases, prior case law helps to govern whether a supplier’s future sale will constitute a sale of goods. Below are a few well-documented cases:

- Is the item ‘moveable’?:

Electricity, power, petroleum, and water are generally ruled as non-goods under BAPCPA, with the court arguing that these items are not typically packaged and movable. See for example, *Hudson Energy Services LLC v. The Great Atlantic & Pacific Tea Company Inc.* and *Samaritan Alliance, LLC v. Plastech Engineered Products, Inc.*

- Does the sale represent added components or goods themselves?:

Inspections, packaging, shipping, and taxes generally represent necessary add-ons to deliver goods to the customer. These items have been deemed as services, not goods within the meaning of BAPCPA. See for example, *Added Value Services, Inc. v. Goody’s Family Clothing, Inc.*

- Advertising:

In *Dwayne G. Deer v. The Yellow Book*, the court concluded that “advertising does not constitute a good as defined by BAPCPA nor a “sale of goods under Article 2” of the Uniform Commercial Code.” The court also observed that 503(b)(9) was adopted to “operate in conjunction with 546(c) to provide administrative expense treatment to a creditor with reclamation rights even if the seller fails to make a demand.” However, *Yellow Book* had “made no assertion that it would be entitled to exercise reclamation

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<sup>2</sup><https://www.bdo.com/blogs/consumer-business-compass/july-2011/recovering-goods-sold-prior-to-bankruptcy>.

rights” with regard to the advertising it had sold to the debtor. The court disallowed the 503(b)(9) claim for advertising.

- Hybrid claims:

In many cases, vendors sell a combination of goods and services. In these situations in which both goods and services are rendered, a vendor’s claim is typically bifurcated. In the cases where this is not possible, courts apply a “predominant purpose test,” and the vendor is allowed a 503(b)(9) claim for all or for nothing.

### 1.3 *The Treatment Group: Classification Scheme*

Products and services rendered are described in short narratives in both the contracts sample and the trade sample. In the contracts sample, items are described in a “Specifications” section of the contract. In the trade sample, items are described for each transaction in a field titled “description,” which is provided by the supplier. Because these narratives do not typically identify whether the item is a product or a service, I use textual analysis to classify transactions into the treatment and control groups. Importantly, because the courts are clear that 546(c) and 503(b)(9) claims be decided on an itemized basis (i.e., bifurcated based on product or service), I assign treatment on a contract- or transaction-level basis rather than at the supplier-firm’s SIC level.

Using a Perl program I first clean the descriptions in both the contracts and trade samples by omitting articles, linking words (i.e., and, the, etc.), and boiler plate legal language. For the trade sample, this procedure reduces each description to one keyword or phrase.<sup>3</sup> For the contracts sample, this procedure reduces each description to a short paragraph.

I identify 486 unique keywords/phrases from the trade sample, and use these keywords to classify the transaction as a good or a service under BAPCPA. Because BAPCPA does not offer a clear definition of what constitutes a “good,” and because I am not an expert in case law, I rely on two separate corporate bankruptcy attorneys who have dealt with 503(b)(9) and 546(c) cases. For each keyword/phrase extracted from the Perl program, each

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<sup>3</sup>Descriptions are short, and language is similar both within- and across- suppliers. Further, suppliers typically already report transactions at the bifurcated level: i.e., only a single good or service per transaction.

attorney identifies whether it is a non-compliant BAPCPA good (control sample), or whether it is likely to constitute a good as defined by BAPCPA. They are instructed to base their knowledge of the UCC definition of goods and their expertise based on prior case law to aid in their classification.<sup>4</sup> Treatment is then assigned to the trade sample accordingly. I then search the narratives in the contracts sample for the same set of keywords identified and classified by the attorneys. I assign treatment for the contracts sample based on this same classification scheme.<sup>5</sup>

The resulting scheme results in the following key words which are classified in the control sample (i.e., they do not qualify for 503(b)(9) or 546(c) treatment): service, consult, electricity, rent, insurance, distribution, printing, trucking, design, power, credit, petroleum, loan, engineering, welding, horticulture, research, water, marketing, advertising, hauling, packaging, ship, inspect, and tax. Any transaction including a description that uses one of these words is classified as the control group, and all other transactions are classified as the treatment group.

Though I've taken measures to ensure that my classification scheme best matches supplier's expectations of 503(b)(9) and 546(c) protection under BAPCPA, I recognize that there will be some noise in my classification. In particular, courts still disagree on whether some items (i.e., water and electricity) should be classified as "goods" under BAPCPA. However, I don't expect that this uncertainty will induce bias my results, but rather should only induce noise.

## 2 Contemporaneous Legislation

The implementation of the BAPCPA in 2005, though primarily aimed at reforming the consumer bankruptcy process, included a few changes that impacted corporations in Chapter 11. Below I outline the parts of the new law that impacted corporations:

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<sup>4</sup>For instances where there is disagreement amongst the attorneys, I omit the observation from the sample.

<sup>5</sup>Because the descriptions in the contracts sample are longer and more detailed, in 27 cases this procedure resulted in a single contract being assigned to both the treatment and control group. For these observations, I consulted one of the attorneys who helped to classify the observation under the 'predominant purpose,' of either a good or a non-good. For robustness, I also omit these 27 observations and results hold (untabulated).

1. New Claims for Suppliers:

BAPCPA provided two new protections for suppliers of the debtor, which are the main focus of my paper. Section 503(b)(9) provides an administrative expense for the value of goods sold and received by the debtor in the ordinary course of business, and Section 546(c) increases the time a seller has to reclaim goods from 10 to 45 days after the receipt of the goods. Both 503(b)(9) and 546(c) only apply to suppliers of goods.

2. Utility Providers:

Section 366 of BAPCPA clarified the protections of utility providers to bankrupt debtors. Specifically, the debtor is now required to provide “adequate assurance of future payment” to utility providers as a prerequisite to the mandate that utility providers continue servicing debtors through Chapter 11. Section 366 was intended to clarify the obligations of the utility provider, which under prior bankruptcy law was left to the interpretation of the court. This clarification potentially enhances the protection of utility providers by providing more clarity to the law, encouraging them to lend more on credit.

Since utilities are classified as services, the implication of Section 366 would work against my main findings. Nevertheless, I ensure that my results are robust to excluding utilities from the analyses (untabulated).

3. Shorter Exclusivity for the Debtor:

BAPCPA 1121(d)(2) placed new caps on extensions for the debtor’s exclusivity period to file a plan of reorganization. Prior to BAPCPA, courts could provide unlimited extensions to the exclusivity period, whereas 1121(d)(2) specified that the debtor’s 120-day exclusive period cannot be extended beyond 18 months. By shortening the exclusivity window of the debtor, creditors can potentially influence the proceedings earlier on in the process.

Shortening the exclusivity period could give more power to lenders and influence their decision to lend ex ante. It’s not clear whether this would uniformly increase all lender

rights, or whether certain groups (i.e., higher priority lenders) would benefit more from the shortened exclusivity. One concern may be that this provision differentially impacts the treatment group, thus the results are operating through an ‘exclusivity’ channel, rather than through the collateral channel. Because it’s difficult to know how the benefits of shortened exclusivity impact the various groups of lenders, results should be interpreted with caution. However, in the manuscript I provide some assurance that the results are not due to an omitted factor that may differentially impact higher priority lenders.

4. Key Employee Retention:

Section 503(c)(1) prohibits administrative claims for payments to insiders for the purpose or inducing them to remain with the business. It was intended to rein in the practice of paying generous incentive bonuses to executives during bankruptcy. It likely resulted in more funds available to the lender pool in bankruptcy, but it’s not clear that this would differentially impact the treatment group.<sup>6</sup>

5. Lease Assumption:

Section 365(d)(4) of BAPCPA now requires a debtor to assume or reject an unexpired lease by the earlier of (i) 120 days after the date of the order for relief; or (ii) the date of the entry of an order confirming the plan. Prior to 2005, debtors were often awarded extensions on the decision to assume or reject a lease, whereas 365(d)(4) limited the debtor’s ability to extend. It’s unclear whether 356(d)(4) would improve or diminish the rights of lessors. By offering more clarity, the BAPCPA law may improve the rights of lessors and thereby increase their willingness to lend. If so, this may reduce the debtor’s demand for other forms of credit. However, 365(d)(4) should not directly impact trade creditors, since leases do meet the criteria of goods or services *sold* in the ordinary course of business.<sup>7</sup>

6. Creditors’ Committee:

Section 1102(b)(3) of the code now requires creditors’ committees to provide access to

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<sup>6</sup>Anecdotally, reducing administrative claims increases the funds available to the general unsecured creditors (i.e., the control group).

<sup>7</sup>Indeed, there are no transactions set up as leases in either the contracts or the trade datasets.

information to creditors represented by the committee who are not on the committee and to solicit their comments. Though the new section does not define “information,” this likely improved the transparency of the bankruptcy process and potentially differentially improved outcomes for non-represented creditors (i.e., lower priority and less-protected classes).

### 3 Is New Collateral Created?

Though the results in Table 9 of the manuscript are consistent with the idea that BAPCPA resulting in a shift of collateral from junior unsecured lenders toward suppliers providing goods, it is unclear whether this increased the total liquidation value of the firm or left it unchanged.<sup>8</sup> For example, if trade creditors value the collateral more than junior, unsecured claimants, then placing the collateral in the hands of trade creditors should increase the total liquidation value of the firm’s assets.

Since it’s difficult to observe how each of the firm’s lenders value the collateral ex-ante, I obtain projected liquidation values of assets for the sample of firms filing for Chapter 11. Upon filing for reorganization, debtors are required to provide a Disclosure Statement (DS) which includes detailed information on financial matters in order to allow the creditors to make an informed decision on whether to accept or reject a plan. The DS is often negotiated with lenders, updated, and amended before a plan is accepted. One key financial metric often included in the plan is information on the projected liquidation values of all of the debtor’s assets. I obtain the final DS for each debtor filing for Chapter 11 over the 2002 to 2008 period from Bankruptcydata.com, which compiles filings from all U.S. bankruptcy courts.

I estimate equation 1 (from the manuscript), for all bankrupt debtors over the 2002 to 2008 period, where the dependent variable is equal to the total liquidation value of the debtor’s assets. Some plans are more detailed than others such that they outline the liquidation value of each type of asset, while others simply provide a total liquidation value for all assets. There are not enough observations to analyze liquidation values of assets by class, thus I assess the liquidation value of all of the debtor’s assets.

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<sup>8</sup>It’s difficult to directly compare the coefficients in Table 4 to Table 9, since they include different samples and the dependent variables are scaled differently due to data restrictions.

The debtors of interest (i.e., treatment group) are those who purchase from suppliers of goods, as these debtors' assets have been differentially allocated to goods suppliers after BAPCPA. Because the sample in this analysis includes only *bankrupt* debtors over 2002-2008, there is little overlap with the contracts and trade datasets used in the main analyses. Thus, it is difficult to assign treatment to the customer/debtor in the same manner as discussed in Section 7.1 of the manuscript.<sup>9</sup> Therefore, I take two approaches. First, I use the description of the firm and its assets that is included in Bankruptcydata.com. Based on this description, treatment is assigned at the debtor level, using keywords as outlined in Section 1.3 of this Appendix. The assumption is that, for example, if the debtor is a service company, they make all of their purchases from service suppliers (i.e., the control group). The second approach I take is to assume that all customers/debtors purchase from at least one goods supplier, and therefore I test for an on-average effect of BAPCPA on liquidation values for all debtors.

Since bankruptcy is a rare event, I'm only able to include 176 observations in the sample. Financial information for each debtor is limited to Asset, Liability, and Revenue ranges (in \$50k increments), so I include indicator variables for each financial variable bucket. Results are reported in Table A1. Column (1) captures the on-average effect of BAPCPA on liquidation values, whereas column (2) captures the differential effect of BAPCPA on the treatment group's change in liquidation values, relative to that of the control group (where treatment is assigned based on the bankrupt debtor's business description). The R-squared is around 23%, suggesting that I explain a reasonable portion of the variation in liquidation values. I fail to find any change in asset liquidation values for debtors filing after BAPCPA, and there is no differential effect for the treatment group relative to the control group. Though the results should be interpreted with caution due to the small sample size, they suggest that BAPCPA did not increase firms' collateral value overall, but rather shifted it amongst creditors.

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<sup>9</sup>Treatment is assigned to the customer/debtor in Section 7.1 by identifying whether that customer/debtor is linked to at least one supplier in the treatment group in the contracts or trade sample. In the bankruptcy sample, it is difficult to obtain information about the debtor's suppliers.

**Table A1: The Impact of BAPCPA on Liquidation Values in Bankruptcy**

This table reports the regression results from equation 1 where *Credit Check* is a count of the number of times that the supplier checks the credit score of their customers in a given month. All other control variables are defined in prior tables. Standard errors are clustered at the supplier level and are reported in parentheses. \*\*\* significant at 1%, \*\* significant at 5%, \* significant at 10%.

	(1)	(2)
Post	-0.059 (0.055)	
Treatment		0.155 (0.106)
Treatment*Post		-0.083 (0.122)
Observations	176	176
Year FE	N	Y
Asset Category	Y	Y
Liability Category	Y	Y
Revenue Category	Y	Y
Adjusted $R^2$	0.229	0.231