Corporate Divestitures During Industry Downturns

Aleksandra Baros

Abstract

This paper investigates industry downturns as catalyst for corporate divestiture. By exploiting industry shocks, I investigate how financial constraints affect the decision of diversified and non diversified firms. Initially, I focus on divestiture decisions and how they are affected by diversification (single vs. multi segment) and the composition of assets (core vs. noncore). I find that firms are more likely to divest when there are industry shocks. I also document that diversified firms sell more assets than non diversified ones, and their deal values are on average higher. Furthermore, multi-segment firms sell more assets in core segments than in noncore ones. Finally, there is a value creation of around 1.4 percent following divestment announcements.

JEL classification: G30, G34.

Keywords: asset sales, core assets, industry shocks, financially constrained, multi-segment firm.

Università Cattolica del Sacro Cuore Milano, aleksandra.baros@unicatt.it

1. Introduction

Global divestitures amounted close to $1,113 billion in 2017, being up for the second year in a row and at their highest level in more than a decade. The rising trend has been also documented in a Deloitte report, according to which the value of divestment activities has increased by 16% with respect to the 2016, and was up for more than 40% with respect to the divestment values in 2012.[1] Examples of corporations announcing massive divestiture plans abound. For instance, General Electric announced a plan for the sale of $200 billion worth of assets and it's banking operations to become more focused digital industrial company in 2015.[2]. Moreover, in 2018, to bring the high debt under control while maintaining the ability to finance further investments, the company decided to sell further $40 billion of assets[3]. Also, Verizon Communications, commited selling its non-core assets to reduce debt and raise cash for investments. It announced sale of its wireline assets for $10.54 billions in cash and sell phone towers for around $5 billions. [4]. Therefore, firms may be selling assets for financing reasons in order to alleviate industry downturns.

Finance literature offers several explanations for asset sales, among which the most relevant are: 1) the efficiency (Maksimovic and Phillips, 2001; Yang, 2008); 2) the focusing (John and Ofek,1995; Berger and Ofek, 1999); and 3) the financing (Shleifer and Vishny, 1992; Lang, Poulsen, and Stulz, 1995). According to the first theory, a specific asset should be owned by the party who can operate it most efficiently, while the second explores the case where a reduction in the degree of diversification makes firm more efficient. While the first two theories explore the strategic motives behind corporate divestitures, the last one takes financing to be the main reason for selling assets. A recent paper by Edmans and Mann (2018) study the information asymmetry in issuance of equity and asset sales and model it to be a driving motive behind firm's financing choice. In their theoretical framework, the amount of financing need and growth opportunities are one of the major determinants in choice of funding. When a firm faces credit constraints, asset sales can provide liquidity that it needs. Hence, asset sales can play an important role in mitigating negative industry and company specific shocks and to some extent, can be seen as a sort of liquidity buffer for a firm.

[1]https://www2.deloitte.com/uk/en/pages/press-releases/articles/global-company-divestment-activity-up-16-percent-this-year.html

[2]Mainthia, A., GE Capital Nears $100 Billion in Asset Sales As GE Transforms. GE Reports. (2015, October 5). Retrieved from https://www.ge.com.

[3]Crooks, E., Fontanella-Khan, J., Will $40bn of asset sales be enough to fix GE? The Financial Times. (2018, November 19). Retrieved from https://www.ft.com.

[4]Nayak, M., Baker, L. B., Verizon to sell wireline operations, towers worth $15.6 billion. Reuters. (2015, February 6). Retrieved from https://www.reuters.com.

Asset sales often represent the part of the restructuring process, but sometimes they are also used to finance operations of the firm and fund investments. They are one of the sources of financing of the corporation, together with internal cash flows, debt and equity. While prior studies have mainly focused on the choice between cash flow, debt, and equity, uses of asset sales as a source of capital has not been discussed as much. Despite a recent surge in research on determinants of asset sales (Warusawitharana, 2008; Arnold, Hackbarth, and Puhan, 2018; Edmans and Mann, 2018), there is little empirical evidence on them being a source of financing. First, the lack of evidence is mainly due to the fact that firm's decision to sell assets is largely endogenous, making it difficult to identify causal link between financing needs and asset sales. Second, while prior research finds that diversification is beneficial, it does not measure to what extent the correlation among different segments matters in deciding whether to divest an asset and which assets to divest.

This paper studies the asset sales activity during industry downturns by exploiting exogenous industry shocks. I define shocks following Mitchell and Mulherin (1996) who use industry sales activity to define industry shocks[5]. For each of the industries (excluding financial sector),[6] I compute the sales growth over a specific year from which then I subtract average sales growth for all the industries. By netting out the sales growth of all industries, this definition captures industry shock, and not the economy wide shock. Using this definition, I estimate 165 sales industry shocks over the sample period from 1995-2016. As expected, the more volatile industries exhibiting more shocks. For robustness purposes, I consider two alternative definitions of shock. Following Oh (2018), industry is in distress if its median firm's sales growth is negative. Then, I examine how firms respond to the situations when there is increased threat of entry due to large reductions in import tariffs. Following Frésard and Valta (2015), I define reduction in tariff to be a shock if in a given year, the negative tariff change is three times larger than the industry average change.

The paper examines whether industry downturns trigger a repositioning of the firm within its current industry, or a move to another one. In order to address this question, I investigate behaviour of two groups of firms: diversified and non diversified firms. Diversified firms operate in the several different industries, while non-diversified firms usually invest in one specific industry.

The importance of divestitures as funding strategy depends on the financial conditions of the firm. Thus, I look at how financial constraints affect the decision of these two types of firms. Financial constraints put a strain on company's ability to obtain financing. To determine

[5]Han, Nanda and Silveri (2016) use the same definition to define industry specific shocks, but they choose the cutoff for decrease in sales growth to be 5% or more.

[6]49 Fama and French industry Classification

whether a firm is financially constrained or not, I employ five commonly used financial constraint measures: 1) the Whited-Wu in- dex (Whited and Wu, 2006); 2) the Hadlock-Pierce SA index (Hadlock and Pierce, 2010); 3) firm size (Gilchrist and Himmelberg, 1995); 4) firm payout (Fazzari, Hubbard and Petersen, 1988); and 5) bond ratings (Whited, 1992; Kashyap, Lamont and Stein, 1994; Hoberg and Maksimovic, 2015). By definition, non diversified firms have only one specific type of asset that they can sell. If their industry is in downturn, sale of asset can be difficult for two reasons: 1) these assets represent main business, and their sale have negative effect on the rest of the firm; and 2) other firms in that industry are also hit by the shock, making it be difficult to find a buyer for the asset. On the contrarily, diversified firms operate in several different industries. Some of them are ancillary businesses, thus having the ease of separability. This gives the firm the option to sell these assets without adversely affecting either the value of the divested asset or its value. In fact, potential buyers are outside of the industry hit by the shock and they are in position to buy the asset.

Next, I extend the analysis to take a closer look at the behaviour of diversified firms to investigate what type of assets do they sell when financially constrained. Firms can be seen as a portfolio consisting of core and noncore assets (Edmans and Mann, 2018). The core assets represent firm's main activity, while noncore are secondary businesses and are usually seen as a way to diversify the firm's cash flows. Therefore, in the case of an adverse industry shock, the firm can choose to use some of its assets to: reposition itself within the industries in which it operates; obtain funds that it needs if it is financially constrained, or both.oo While the single segment firm can sell only the core asset, the multi-segment firm can choose between core and noncore asset, through the sale of its segments, divisions or subsidiaries. Hence, asset sales can be seen not just as a source of financing, but also restructuring. They can be used when the companies are financially constrained and need to finance the investment expenditures (Lang et al., 1995; Hovakimian and Titman, 2006). While both types of firms receive funds in these cases, the latter, multi-segment, often gains from wealth effects (Rosenfeld, 1984; Dittmar and Shivdasani, 2003) through positive market reaction to the sale of assets. Following negative industry specific shock, companies that find it hard to raise external funds, can sell assets as a way to raise capital to exit the crisis. This is less difficult if assets are not the part of the company's main business and if they are not specific. This way, buyers for the assets can be found easier and the sale should not negatively affect asset or the rest of the company.

Following Duchin (2010), I take into account intra-industry correlations between investment opportunity and cash flow, which are calculated as the sales-weighted average intra-industry correlations across all business segments. I would expect that firms with highly correlated segments are less likely to sell one of their businesses, even if financially constrained. The

reason is that in this way, they would send a negative signal to the market about the stability of the rest of their business and in that way negatively impact the overall firm value (Edmans and Mann, 2018). Moreover, if firms decide to sell segments that exhibit low correlation with their main business, then this would imply that non-core assets may represent a sort of a liquidity buffer for a firm in crisis situations. This is in line with conglomerate literature and the trend of increasing focus (John and Ofek, 1995; Berger and Ofek, 1999). Hence, I expect that diversified firms sell assets that have low correlation with their main business, and are thus increasing focus.

The sample used in the analysis includes all firms reporting data in Compustat and Compustat's Segments file for the time period 1995-2016. Compustat is used to obtain yearly firm-level data while data on firm's business segments are retrieved from Compustat's Segments database. CRSP database is used to obtain firm's stock market data. Finally, data on asset sales are retrieved from Thomson One Banker, which contains the Securities Data Company (SDC) transaction data.

Preliminary analysis shows that multi segment firms sell more assets than single segment ones, and the value of deals is on average higher when multi segment companies sell assets. These two types of firms are different, and multi segment firms are larger in size and have higher market leverage (Ahh, Denis, and Denis, 2006) but lower cash holdings (Duchin, 2010). On the other hand, it seems that the market appreciates single segment firms, which have higher market-to-book ratios (Lang and Stulz, 1994; Berger and Ofek, 1995). Moving forward to divestment activity, I document that the divestments are more likely during periods when an industry shock occurs then when there is no shock, and this difference is statistically significant. Next, analysis of the composition of the sample reveals that core assets represent about 80 percent of the total assets in the full sample, and 67 percent in the multi-segment companies. Then, looking at multi-segment firms, I document that they sell more in core segments than in noncore ones. Moreover, I also study the wealth effect around the divestiture announcements. The univariate analysis yields that there is a value creation of around 1.4 percent following divestment announcement. The multivariate regression shows that on the date of the announcement of the asset sale, abnormal returns are lower for bigger companies, who have higher research and development divisions, and whose sales growth is high. Also, more financially constrained companies have lower abnormal returns. Furthermore, I examine the drivers of value of divestitures and show that it is positively related to the size of the company, its leverage, capital expenditures and if it sells core asset. Finally, I investigate the determinants of the divestiture decision. The probability of divestment is higher for larger firms that have high leverage and investments. Also, occurrence of an industry shock increases the probability of an asset sale, as well as

having a core asset.

Considering that the decision to divest is endogenous, in the future analysis I introduce exogenos industry shocks. I will exploit these shocks to impose a situation that impacts financially constrained firms more severely than non financially constrained ones. By comparing the reaction of two groups, it will be possible to determine whether financing needs affect the asset sale decision. To this end, I use a quasi-natural experiment research design, namely difference-in-difference methodology. I start by identifying financially constrained firms (treated firms) within the industry hit by the shock. Then, I compare them to financially unconstrained control firms operating in the same industry. The time period I consider is [-3, +3] years centered around event, as I believe that it will give enough time for a firm to carry out a procedure of divesting and help me to better isolate the effect of industry shock on asset sales. Since change in firm's financial position during and after the shock may be related to unobserved changes in its investment opportunities, I alleviate this problem by measuring financial constraints one year prior to the shock. Finally, I will examine equity issues and compare them to asset sales in order to determine which is the principal cource of financing that company uses to exit the crisis.

This study is part of a growing strand of the literature and it is closely related to the recent works by Edmans and Mann (2018) and Arnold et al. (2018). Edmans and Mann (2018) look at the decision to sell an asset or equity depending on the size of the financing need, while Arnold et al. (2018) investigate the financing choice between an asset sale and equity issuance from the perspective of the bondholder-shareholder conflict. This paper moves from the choice between asset sales and other sources of financing, and examines the role that asset sales can play in helping firms to exit crisis and restructure themself. Therefore, it analyzes the differences between single and multi-segment companies. Namely, is it the case that firms choose to sell non-core assets and focus on their main activity, making noncore assets a form of a financial slack? The intuition is as follows. After negative industry specific shocks, companies find it harder to raise external funds. So, they can sell assets as a way to raise capital to finance new investment opportunities in their core industry, or meet liquidity needs. Whereas equity and debt are sort of funds that are often very difficult to raise in crisis times, raising funds through asset salescan be easier if assets are not specific to the industry experiencing downturn. Therefore, firms may be selling assets in order to alleviate negative industry shocks. Thus, there is an important difference in choosing whether to sell an asset or not, and which asset to sell when company experiences a negative exogenous industry shock. Companies that operate in only one industry and are not diversified, have only core assets in their portfolio. Therefore, they have the choice to sell the core assets, or do nothing following an industry shock. On the other hand, diversified companies own both

core assets and noncore assets, which are in the industries different from the main business. Facing the crisis, company can decide to move to the better performing industry by selling its core asset, focus on its core business by selling noncore, or do nothing. In addition, strain on external capital can amplify the effect of asset sales, and firms that are financially constrained (Fazzari, Hubbard and Petersen, 1988; Whited, 1992; Kashyap, Lamont and Stein, 1994; Gilchrist and Himmelberg, 1995; Whited and Wu, 2006; Hadlock and Pierce, 2010) are likely to sell more. Therefore, I expect that the financially constrained firms use asset sales to mitigate negative industry effects. Moreover, sale of assets by a non diversified company, which represent its main business, has a direct effect on the value of the rest of the firm. Therefore, during crisis, decision to sell asset could have an adverse effect on the asset value as well as on the remaining business. Differently, diversified firms can sell assets that are part of ancillary businesses, that are not in the industriy experiencing downturn, and that are easily separable from the rest of the company. In this case, buyer come from the non crisis industries and are able to pay the true value for the asset. Thus, the diversified firms are more likely to engage in asset sales.

This paper connects to two strands of literature, diversification and financing literature. It contributes to the literature on diversification by making a distinction between core and non-core assets, and by investigating if industry downturns are a catalyst for asset sales by financianlly constrained companies. Paper considers the role of the correlation between different business segments within a firm that may be a crucial factor in deciding which segment will be sold to help company exit the crisis. In this way, the study adds to the line of literature that studies effects of diversification (Mueller, 1987; Berger and Ofek, 1995; Stein, 1997; Villalonga, 2004). Also, this research offers a new empirical evidence on the asset sales being a funding source during industry downturn. Companies may choose to sell an asset to mitigate the negative industry effect, and finance an investment opportunity of its core business or other growing opportunity (Myers and Majluf, 1984; Lang et al., 1995; Schlingemann, 2004; Leary and Roberts, 2005; Kayhan and Titman, 2007; Borisova and Brown, 2013).

The paper is organized as follows. Section 2 provides a short overview of the related literature. Section 3 describes the data used and variables constructed. Section 4 reports the results. Future analysis, additional tests and robustness checks are presented in the section 5, while section 6 concludes.

2. Literature review

Prior studies have found that firms become more efficient by reducing the degree of diversification and focusing on their main business (John and Ofek, 1995; Berger and Ofek,1999; Çolak and Whited, 2007), thus improving the allocation of resources (Maksimovic and Phillips, 2011). Asset sales can also be used to steer company out of potential bankruptcy (Ofek, 1993). In practice, asset sales play a salient role in investment financing. Borisova, John and Salotti (2013) find that more than half of asset sellers pursue asset sales for financing motives. Similarly, asset sales seem to be more important as a source of funds than debt raised according to Eckbo and Kisser (2013). In particular, they show that the annual contribution of asset sales to the overall corporate funding is 32% on average whereas net debt and equity contribute a mere 12 and 15% respectively. Shleifer and Vishny (1992) state that firms facing high cost in raising capital through external markets value more the option to fund projects through proceeds from asset sales. Brown, James, and Mooradin (1994) observe that debtholders of financially distressed firms welcome the asset sales decision, and believe that it sends good signal about the value of the remaining investments. Furthermore, asset sales are used to fund capital expenditures (Lang et al., 1995; Hovakimian and Titman, 2006) and investments into R&D (Borisova and Brown, 2013). A survey of CFO managers showed that, in order to obtain additional funds, 70% of financially constrained firms increased sale of assets during financial crisis (Campello, Graham, and Harvey, 2010). Recent paper by Edmans and Mann (2017) study the information asymmetry in issuance of equity and assets sales and model it to be a driving motive behind firm's financing choice. In their theoretical framework, the amount of financing need and growth opportunities are one of the major determinants in choice of funding. Their model predicts that asset sales are preferred if the firm has low financing need, if it is selling assets for operational reasons, and if it has non-core assets that exhibit less information asymmetry or have no synergies. Arnold, Hackbarth, and Puhan (2018) find that high leverage firms tend to sell assets to fund investments during the bad states of a business cycle, thus enhance the procyclicality of equity issues. On the other hand, Desai and Gupta (2018) that decision to sell assets with respect to issuing financial security depends on the size of the financial need and that they opt to sell assets when financing need is relatively low. Many empirical studies focus on how asset sales affect the firm value (Slovin, Sushka, and Poloncheck, 2005; Ray and Warusawitharana, 2007), how are the proceeds used (Lang et al., 1995; Bates, 2005) and how do firms perform afterwards (John and Ofek, 1995). In addition, several papers have studied what are the determinants of asset sales. Schlingemann, Stulz, and Walkling (2002) focus on liquidity and financing needs whereas Warusawitharana (2008) finds that profitability and

firm size are important predictors of asset sales.

3. Data and Methodology

In this section, I describe the data and the empirical method used. First, I explain how the divestiture sample is constructed, and then move to the creation of firm-segment level database. Then, I provide the definitions of main and control variables, and the possible robustness checks.

3.1. Divestiture sample

I use ThomsonReuters' Thomson One Banker Mergers and Acquisitions database to create the sample of asset sales that occurred in the period from 1995 to 2016. I focus only on completed deals, for which the value of transaction is reported in the database, and is above US$ 1 million. I initially identify 19,167 divestitures[7]. I classify industries based on Fama and French 49 industry classification, and exclude firms from the financial industry. Then, I proceed to merge the divestiture sample with Compustat and Compustat Segment database. Because managers have a discretion in classifying and reporting segments, it can happen that a divestiture does not correspond to the dropped segment. To control for this, following Whited and Çolak (2007), I require that the Fama and French industry code of segment and divested asset from SDC database match. The final sample consists of 3,105 divestitures undertaken by 1,522 companies.

3.2. CRSP-Compustat and Compustat's Segment file

The main sample includes all firms that are available in the annual merged CRSP-Compustat file and Compustat's Segment file for the period of 1995-2016. The Compustat database is used to obtain yearly financial firm-level data. CRSP database is used to retrieve the firm's stock market data, and calculate measures for firm's age, market capitalization, and market leverage. Compustat's Segment file is used to obtain the data on a firm's business segments, including the total assets, sales, the industry in which they operate and compute the number of segments and performance measures. I remove financial sector from Compustat data, but do not exclude the segments that are finance divisions because this would mean excluding large conglomerates that operate a finance division. Since the segment file

[7]I consider asset sales to be any divestiture or sell-off of business segment, product lines, investment assets and property, plant and equipment. The data are obtained from SDC database, and as a form of transaction, include Acquisition of Certain Assets and Acquisition of Assets.

can contain repeated firm-year observations if it appears on several source documents, I only take the latest source year of each segment-year observation[8]. Following Berger and Ofek (1995), I exclude observations for which the segment's industry is missing. Furthermore, I exclude observations where segments have negative total assets and sales. Then, I use this file to construct measures of number of segments, core and noncore assets, as well as to classify firm as single or multi-segment (complete definitons are provided in Section 3.3). My final sample contains 152,444 firm-segment-year observations, for which I have 3,051 firm-segment-year divestitures. Some firms have divested assets more than once within the segment-year, therefore the number of divestitures from the SDC sample has been consolidated at the firm-year level, and merged to CRSP-Compustat-Segment database, resulting in 3,051 divestitures out of original 3,105 divestitures. In addition, I use financial market data from CRSP to investigate the wealth creation for the firms that have announced asset sales. As a result, based on the price data available, I have estimated cumulative abnormal returns for 3,038 divestitures.

3.3. Industry Shocks, Single vs Multi segment, Core vs Noncore

To study the relation between corporate restructuring decision and industry downturn, I first start by defining exogenous industry shocks. They are one of the building blocks of the analysis, and for that purpose I need to define under which conditions they are exogenous. I use industry classification defined by Fama and French (1997), and focus on 48 industries while excluding financial sector. In the preliminary analysis, I define shocks following Mitchell and Mulherin (1996) who use industry sales activity to define industry shocks[9]. For each of the 48 industries, I compute the sales growth over a year from which then I subtract average sales growth from all 48 industries. I create an indicator variable Industry Shock that equals one if the industry the firm operates in experiences a 10% or greater decrease in sales over a given year. By netting out the sales growth of all industries, this definition enables to capture industry shock, and not the economy wide shock. Using this definition, I estimate 165 sales industry shocks in the 48 Fama and French industries, over the sample period from 1995-2016 (Table 1). The table shows an expected picture, with more volatile industries exhibiting more shocks. Hence, textile, real estate, tobacco, steel, shipbuilding and railroad equipment, and defense are the industries with the highest number of shocks. On the other end, industries such as medical equipment, pharmaceuticals, communication exhibit no shock during the sample period.

[8]Based on Duchin (2010)

[9]Han, Nanda and Silveri (2016) use the same definition to define industry specific shocks, but they choose the cutoff for decrease in sales growth to be 5% or more.

[Insert Table 1 here]

In order to analyze the effect of diversification on divestment decision, I provide definition for single segment (undiversified)[10] and multi-segment (diversified)[11] firm. Calculating the number of segments by simply summing the number of segments reported in Compustat Segment data could be misleading, because, for instance, all segments might operate in the same industry, in which case there is little diversification. Therefore, I first merge segments within firms based on the Fama and French industry classification, and then look at the number of segments they have in different industries. Following Duchin (2010), I define diversified firms as those that report two business segments or more in Compustat.
Extending the analysis to the diversified firms and their asset composition, I differentiate between core and noncore assets. Lang, Ofek, and Stulz (1996) define segment as a core if its four-digit SIC code is equal to the main SIC code of the firm, and all other as noncore segments. Similarly, Schlingemann et al. (2002) classify segments based on their two- and four- digit SIC codes. Yet, firm can have segments that operate in different industries, and are still crucial part of its business activity. Therefore, I classify a segment as a core if the value of its assets is at least 50 percent of the firm's total assets, or if its assets are greater than 25 percent of the firm's total assets, and there are no segments whose size is above 50 percent. As a robustness check, I will define segments as core based on their total sales, and on their SIC codes.

I consider asset sales to be any divestiture or sell-off of business segments, product lines, investment assets and property, plant and equipment. The value of the divestitures comes from the Securities Data Company (SDC) transaction database, and I use this variable to investigate what are the drivers of the value of asset sales. I also create an indicator variable Divestment dummy, that takes value of one if the firm sold assets in a specific year, and zero otherwise. Below, I will produce an alternative definition of asset sales that is based on Compustat data, and that I will use in the analyses to come. Table 2, panel A reports the sample divestiture's time series. As expected, the number of transactions decreases during the crisis periods, and increases when the economy recovers. The total value of divestitures that took place during the sample period amounts to about 76.2 billion of US dollars and the value of transaction is on average around 245 million. In panel B, I outline the asset sales that have been carried out by single and multi-segment firms over the sample period. Multi-segment firms have more divestitures compared to single segment ones (1932 versus 1173), and their deals are larger, with an average deal that amounts close to 298 million

[10]Non-diversified firms have only one specific type of asset that they can sell.
[11]Diversified firms operate in several different industries, and some of them are ancillary.

compared to 160 million. Divestitures by the type of assets are reported in panel C of Table 2. It is interesting to notice that the number of core assets sold is much greater than the number of non-core ones.

[Insert Table 2 here]

Table 3 reports the composition of the final sample from Thomson One Banker-CRSP-Compustat database. Single-segment firms represent 60.4 percent of the whole sample, while multi-segment one's 39.4 percent (Panel A). In addition, core segments constitute 81 percent of the sample (Panel B), and the similar is when it comes to the multi-segment firms where core segments constitute almost 65 percent of the sample, which implies that firms are increasing focusing and that noncore assets are almost disappearing within diversified firms (Panel C). Moreover, multi-segment firms divest more compared to single segment ones (Panel D), and this difference is statistically significant at 1 percent. Examining the divestment activity over the period of industry shocks, univariate analysis shows that divestments are more likely during the period of industry shocks (Panel E of Table 3).

[Insert Table 3 here]

3.4. The Control Variables

This section presents the control variables that relate to the factors that potentially affect the decision to sell assets, as shown in the literature. These capture a firm's size, capital structure, age, profitability, growth opportunities, investments, and financing constraints. All variables are measured in the year before the asset sales announcement and are winsorized at the 1st percentile level on the both sides of the distribution. The construction of each variable is presented in the table in Appendix A.

The larger the size of the company, the higher is the probability that the firm will sell in case of the industry downturn. Highly levered companies are also more likely to sell the assets to decrease the wealth transfer to bondholders. Higher cash reserves give firm the bargaining power, hence making it is less likely to sell assets. I use return on assets and sales growth to proxy for firm's profitability. The higher is the profitability of the company, the less likely it is to be financially constrained and in need of selling assets. I employ Tobin's Q to measure firm's growth opportunities. A firm with higher growth opportunities prefers to protect its assets, and therefore it is inversely related to the decision to divest. I proxy the firm's investments with capital expenditure measure, and use the WW index (Whited and Wu, 2006) to proxy for the firm's financial constraints.

Panel A of the Table 4 reports the summary statistics of the sample companies. There are wide variations in cash holdings, with a mean of 18.5 percent of the firm's total assets and a standard deviation of 22.3 percent (in line with Bates et al., 2009; Duchin, 2010). The average ROA of the sample firm is 4.6 percent. The wide variations can be also seen for Tobin's Q, where the average Tobin's Q, which is used as a proxy for investment opportunity, has a mean of 1.8 with a standard deviation of 1.6, while the capital expenditures amount to 6.1 percent of total assets on average. These variations are not surprising if we consider that the sample is comprised of both, single segment and multi-segment firms. For that purpose, panel B and C present summary statistics for both types of companies.
The diversified firms are on average larger, have more leverage (Ahh, Denis, and Denis, 2006) due to the impact of diversification on net debt, and are older. However, they also seem to hold less cash (Duchin, 2010) because they are more diversified in their investment opportunities and cash flows with respect to single firms. On the other hand, single segment firms have higher investment opportunities (Tobin's Q) and higher market values (market-to-book ratio) than the multi segment firms which is in line with the literature on the diversification discount (Lang and Stulz, 1994; Berger and Ofek, 1995). Furthermore, diversified firms have lower research and development expenditures, and lower capital expenditures on average which is in line with the inefficient fund allocation across divisions (Rajan, Servaes, and Zingales, 2000). All these differences are statistically significant at 1 percent, with exception of the payout.

[Insert Table 4 here]

3.5. Some notes on future extensions and analyses

In order to validate the results, I will perform several robustness checks in future analyses. First, I consider several different definitions and types of shocks. Following Oh (2018), industry is in distress if its median firm's sales growth is negative. Then, I examine how firms respond to the situations when there is increased threat of entry due to large reductions in import tariffs. These events generate exogenous variation in the level of competition faced by domestic firms, hence allowing me to estimate the causal effect of increased entry threat on asset sales. Following Frésard and Valta (2015), I define reduction in tariff to be a shock if in a given year, the negative tariff change is three times larger than the industry average change. Second, I consider alternative definitions for core and noncore assets. Hence, looking at Lang et al., (1996) and Schlingemann et al, (2002), I define segment as core if it has the same 4- or 2-digit SIC code as the main company. Third, as an alternative measure of asset

sales, I need to calculate it based on Compustat database. Therefore, I define asset sales as a sum of sale of investment (siv) and property, plant, and equipment(sppe) less the investing activities (ivaco) and change in short-term investments (ivstch) (Eckbo and Kisser, 2013).
A caveat is in order: this preliminary analysis still does not address the important issue of endogeneity. The corporate structure is exclusively choice of the firms, which renders it largely endogenous. Hence, it makes it difficult to identify causal link between financing need and asset sales. In order to measure the causal effect, I employ quasi-natural experimental research design method, namely difference-in-difference methodology that exploits the exogenous shock to the industry. The identification strategy is presented in the section 5.

4. Results

In this section I present the preliminary analysis about the asset sales decisions, and how diversification (single vs. multi-segment), composition of the assets (core vs. noncore), and industry downturn affect it.
First, I investigate whether these decisions create value for the selling firm, and if the wealth effect depends on these characteristics. For this purpose, I perform an event study based on the divestment announcement date. I use the event window of (-1, +1) and the market model approach to estimate abnormal returns[12]. As a result, I obtain cumulative abnormal returns (CARs) for 3,038 divestitures. The results of the univariate study are represented in Table 5 of the paper. There is a statistically significant value creation of 1.4 percent (Table 5, Panel A) following the divestment announcement (John and Ofek, 1995; Lang et al., 1995; Slovin, Sushka, and Poloncheck, 2005).

[Insert Table 5 here]

Then, I employ the multivariate analysis in Table 6 to determine the drivers of the wealth creation. On the date of the announcement of the divestiture, wealth effect is lower for larger companies, with high research and development costs, and high sales growth (true for all 5 models in Table 6). Similarly, it seems that also financial constraints decrease value effect of asset sales. On the contrary, higher cash balances increase the abnormal returns. Cumulative abnormal return is lower for the multi segment company during industry shock (model 4), while the sale of core asset during industry shock is positively related with value creation for the shareholders (model 5).

[12]I will also use other event windows to verify the effect of divestiture on wealth creation.

[Insert Table 6 here]

Table 7 reports analysis that examines the drivers of value of divestitures and shows that it is positively related to size of the company, its leverage, capital expenditures and if it sells core asset, while it is inversely related to profitability and sales growth.

[Insert Table 7 here]

In a second set of analyses, I examine determinants of the divestiture decisions. In order to investigate why some companies divest assets and others not, what multi segment companies do when there is an industry shock, I use the logit model where the dependent variable is Divestment dummy that takes value 1 if divestiture took place on a firm-segment-year level, and 0 otherwise. Size, leverage and investments are positively related to probability to sell (Table 8).

[Insert Table 8 here]

Large firms have more assets that they can sell to obtain financing than small firms. Asset sales can be used to obtain funds and decrease outstanding leverage, or to further finance high investments. Industry shock increases the probability of asset sale (model 5), as well as having a core sale (model 3).

5. Future Analyses

The study presented in this paper is at its early stage, and all the analysis are preliminary. Therefore, it is important to point out several issues that will be addresses.
First of all, as mentioned in Section 3.5, the issue of endogeneity that has not been addressed so far. Considering that the decision to divest is endogenous, I will exploit the exogenous shocks to the industry, to examine how financial constraints affect decisions of single and multi segment firms to restructure, and then what type of assets are sold. Therefore, I will use a quasi-natural experiment research design, namely difference-in-difference methodology. I start by identifying financially constrained firms (treated firms) within the industry hit by the shock. Then, I compare them to financially unconstrained firms (controls) operating in the same industry. Time window I consider is [-3, +3] years before and after the event, as I believe that it will give enough time for a firm to carry out a procedure of divesting and help me to better isolate the effect of industry shock on asset sales. Classification of

firms is based on five commonly used financial constraint measures: 1) the Whited-Wu index (Whited and Wu, 2006); 2) the Hadlock-Pierce SA index (Hadlock and Pierce, 2010); 3) firm size (Gilchrist and Himmelberg, 1995); 4) firm payout (Fazzari, Hubbard and Petersen, 1988); and 5) bond ratings (Whited, 1992; Kashyap, Lamont and Stein, 1994; Hoberg and Maksimovic, 2015). Since change in firm's financial position during and after the shock may be related to unobserved changes in its investment opportunities, I alleviate this problem by measuring financial constraints one year prior to the shock. In addition, to ensure that there are no pre-treatment trends in the data I will check if there are differences in the observable characteristics of two groups of firms one year before the shock.

Secondly, as mentioned in the section 3, I will include different measures for industry shocks, multi and single segment firms, core and noncore assets, and asset sales to verify the robustness of the results.

Third, the more active is the market in terms of corporate transactions, the easier it will be for a seller to find buyers and sell the asset at the price that is relatively close to its true value. Hence, I will estimate control for the market liquidity that uses the intensity of corporate market transactions within an industry as a proxy for that industry's asset market liquidity (Schlingemann et al., 2002; Harford and Uysal, 2014).

Fourth, focusing on diversified firms, which enables extending the analysis to several segments, following Duchin (2010), I will include cross-divisional correlation in investment opportunity and cash flow in order to capture the level of diversification.

Finally, I want to analyze how companies reposition themselves after the shock. This decision depends greatly on the industry concentration and competition of these sectors. Therefore, I plan to introduce in the analysis measure of industry concentration (at both firm and segment level), Herfindhal index following the paper by Uysal and Harford, 2014.

6. Conclusion

TBD

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Appendix A. Tables

Table 1: **Industry Shocks.**
This table reports number of industry shocks that have occured in every industry over the sample period 1995-2016. Classification is based on Fama and French 49 industries. *Industry shock* is calculated as sales growth (based on Fama and French 49 industries) over a year from which then average sales growth from all 48 industries is subtracted. Indicator variable Industry Shock that equals one if the industry firm operates in experiences a 10 percent or greater decrease in sales for the year.

Industry	Total	Industry	Total
Agriculture	5	Shipbuilding, Railroad Equipment	8
Food Products	1	Defense	8
Candy & Soda	2	Precious Metals	6
Beer & Liquor	1	Non-Metallic and Industrial Metal Mining	9
Tobacco Products	8	Coal	9
Recreation	3	Petroleum and Natural Gas	5
Entertainment	2	Utilities	2
Printing and Publishing	7	Communication	0
Consumer Goods	5	Personal Service	1
Apparel	1	Business Service	0
Healthcare	1	Computer Hardware	3
Medical Equipment	0	Computer Software	0
Pharmaceutical Products	0	Electronic Equipment	3
Chemicals	4	Measuring and Control Equipment	3
Rubber and Plastic Products	2	Business Supplies	3
Textiles	14	Shipping Containers	3
Construction Materials	4	Transportation	0
Construction	3	Wholesale	0
Steel Works Etc	8	Retail	0
Fabricated Products	5	Restaraunts, Hotels, Motels	1
Machinery	3	Insurance	2
Electrical Equipment	4	Real Estate	9
Automobiles and Trucks	4	Trading	0
Aircraft	0	Almost Nothing	3

Table 2: **Divestiture Time Series for full sample, by company type, and asset type.**
This table reports the mean, sum and the number of asset sales over the sample years. *Asset Sales* are defined as any divestiture or sell-off of business segment, product lines, investment assets and property, plant and equipment. Value of asset sales has been obtained from the SDC database, and it relates to the divestitures for sample period 1995-2016, with the existing value of transaction and higher than 1 million. Sample excludes financial sector companies, and observations for which data in Compustat are missing. *Multi segment* are firms that report two business segments or more in Compustat, and segments are in different industries. *Single segment* are firms that report only one business segment in Compustat. Segment is a *Core* if the value of its assets is at least 50 percent of the firm's total assets, or if its assets are greater than 25 percent of the firm's total assets, and there are no segments whose size is above 50 percent. *Panel A* presents time series for the full sample, *Panel B* for sample of Single and Multi segment companies, and *Panel C* reports asset sales by the type of asset sold.

Panel A	Full Sample		
Year	Mean	Total	N
1995	56.896	7567.187	133
1996	94.885	15466.310	163
1997	202.948	34907.100	172
1998	167.148	32593.760	195
1999	239.735	41474.080	173
2000	170.101	23984.230	141
2001	230.659	33676.280	146
2002	141.143	22441.790	159
2003	193.981	31618.810	163
2004	188.103	30096.440	160
2005	160.128	27061.600	169
2006	433.539	81071.810	187
2007	243.629	40929.730	168
2008	154.384	18834.880	122
2009	151.634	17437.850	115
2010	404.368	43671.720	108
2011	219.260	21048.910	96
2012	329.537	40203.530	122
2013	332.480	41892.420	126
2014	722.454	75135.240	104
2015	524.560	40391.120	77
2016	384.034	40707.630	106
Total	245.479	762212.400	3105

Table 2: *Continues from previous page*

Panel B	Single Segment Firms			Multi Segment Firms		
Year	Mean	Total	N	Mean	Sum	N
1995	41.500	2033.512	49	65.877	5533.675	84
1996	46.279	2915.594	63	125.507	12550.710	100
1997	92.486	7121.419	77	292.481	27785.690	95
1998	95.609	6501.385	68	205.452	26092.380	127
1999	127.441	9175.749	72	319.785	32298.330	101
2000	90.917	5545.908	61	230.479	18438.320	80
2001	139.636	7121.449	51	279.525	26554.830	95
2002	76.848	3919.252	51	171.505	18522.540	108
2003	64.726	2912.667	45	243.272	28706.150	118
2004	65.200	2999.190	46	237.695	27097.250	114
2005	88.681	5764.264	65	204.782	21297.330	104
2006	276.868	16058.330	58	503.981	65013.480	129
2007	104.533	8153.575	78	364.180	32776.150	90
2008	54.692	2789.270	51	225.994	16045.600	71
2009	80.367	3295.033	41	191.119	14142.820	74
2010	306.843	15035.330	49	485.363	28636.390	59
2011	159.048	5725.730	36	255.386	15323.180	60
2012	201.423	9064.053	45	404.409	31139.480	77
2013	289.840	12752.980	44	355.359	29139.440	82
2014	892.507	32130.240	36	632.427	43005.000	68
2015	209.095	7945.624	38	831.936	32445.500	39
2016	376.729	18459.720	49	390.314	22247.900	57
Total	159.779	187420.300	1173	297.512	574792.100	1932

Table 2:*Continues from previous page*

Panel C	Core Segment Sales			Non Core Segment Sales		
Year	Mean	Total	N	Mean	Total	N
1995	56.276	5909.007	105	59.221	1658.180	28
1996	90.039	11434.950	127	111.982	4031.351	36
1997	194.476	26837.690	138	237.336	8069.415	34
1998	152.444	24390.990	160	234.365	8202.773	35
1999	233.212	35215.040	151	284.502	6259.035	22
2000	168.386	20879.800	124	182.613	3104.427	17
2001	185.385	23914.680	129	574.212	9761.601	17
2002	121.400	15782.010	130	229.648	6659.783	29
2003	204.221	27774.110	136	142.397	3844.707	27
2004	179.853	24819.650	138	239.854	5276.790	22
2005	163.643	25855.540	158	109.642	1206.058	11
2006	420.051	67628.220	161	517.061	13443.580	26
2007	235.559	37218.330	158	371.140	3711.395	10
2008	99.538	10949.170	110	657.142	7885.700	12
2009	125.978	13101.750	104	394.191	4336.100	11
2010	417.162	42967.720	103	140.800	704.000	5
2011	221.176	18578.770	84	205.846	2470.147	12
2012	336.838	37725.830	112	247.770	2477.700	10
2013	348.615	39393.450	113	192.229	2498.971	13
2014	741.607	69711.080	94	542.417	5424.166	10
2015	561.700	38757.320	69	204.225	1633.800	8
2016	364.541	32444.180	89	486.085	8263.445	17
Total	241.845	651289.300	2693	269.231	110923.100	412

Table 3: **Sample Composition, Asset Sales by Firm Type and by Industry Shock.**
This table presents the composition of sample that includes non financial firms from Compustat for the sample period 1995-2016 and their segment data, with nonmissing data on the industry codes of each business segment, and segments with nonnegative total assets and sales. *Multi segment* are firms that report two business segments or more in Compustat, and segments are in different industries. *Single segment* are firms that report only one business segment in Compustat. Segment is *Core* if the value of its assets is at least 50 percent of the firm's total assets, or if its assets are greater than 25 percent of the firm's total assets, and there are no segments whose size is above 50 percent. *Divestment* is an indicator variable that takes value of 1 if company sold assets on a firm-segment level in a given year and 0 otherwise. Industry Shock is calculated as sales growth (based on Fama and French 48 industries) over a year from which then average sales growth from all 48 industries is subtracted. Indicator variable *Industry Shock* that equals one if the industry the firm operates in experiences a 10 percent or greater decrease in sales for the year.

Variable	Mean	N	ttest
Panel A: Firm type by segment			
Single segment firm	0.604	116418	
Multi segment firm	0.396	116418	
Panel B: Segment composition			
Core segment	0.810	152444	
Non core segment	0.190	152444	
Panel C: Segment composition in Multi Segment firm			
Core segment	0.648	82145	
Non core segment	0.352	82145	0.352 ***
Panel D: Asset Sales by firm type			
Single segment firm asset sales	0.018	70299	
Multi segment firm asset sales	0.022	82145	-0.004 ***
Panel E: Divestment activity by shock			
Divestment if industry shock	0.025	13477	
Divestment if no industry shock	0.020	138967	-0.005***

Table 4: **Descriptive Statistics: full sample and by firm type.**
This table presents summary statistics for the sample that includes non financial firms from Compustat for the sample period 1995-2016 and their segment data, with nonmissing data on the industry codes of each business segment, and segments with nonnegative total assets and sales. *Size* is the logarithm of he market capitalization, that is CPI-adjusted in 2010 dollars. *Market Leverage* is ratio of the sum of total long term debt (dltt) and current liabilities (dlc) over the sum of common shares outstanding (csho) multiplied by the closing price (prcc_f) and total assets (at) less common equity (ceq). *Cash* is ratio of cash and short term investments (che) to total assets (at). *Firm age* is the logarithm of the difference of sample year (fyear) and the year when company first appeared on CRSP. *ROA* is ratio of operating income before depreciation (oibdp) and total assets (at). *Mtb* is ratio of absolute value of price (abs(prc)) multiplied by common shares outstanding over common equity (ceq). *R&D* is calculated as research and Development expense (xrd) over total assets (at). *Tobin's Q* is calcualted as the sum of market capitalization (mktcap) and total assets (at) less the sum of common equity and deferred taxes that is then divided by total assets. *Payout* is sum of total dividends (dvt) and purchase of common and preferred stock (prstkc) divided by total assets (at). *Capex* is capital expenditure (capx) divided by the total assets (at) from period t-1. *Sales growth* is logarithm of sales in time t over sales in period t-1.

Panel A	Full database			
Variables	Mean	Median	St. Deviation	N
Size	5.811	5.783	2.165	151233
MarketLeverage	0.176	0.125	0.181	151208
Cash/TA	0.185	0.091	0.223	152356
Firm age (ln)	2.333	2.485	1.116	143022
ROA	0.046	0.098	0.229	148144
Mtb	2.921	1.891	4.616	150800
R&D/TA	0.047	0.000	0.105	152377
Tobin's Q	1.873	1.318	1.699	144818
Payout	0.029	0.007	0.055	139156
Capex	0.061	0.036	0.077	133074
Sales growth	0.095	0.074	0.348	132197

Table 4. *Continues from previous page*

Panel B	Single segment firm				Multi segment firm				
Variables	Mean	Median	St. Deviation	N	Mean	Median	St. Deviation	N	ttest
Size	5.380	5.359	1.950	69749	6.181	6.232	2.270	81484	-0.811 ***
MarketLeverage	0.155	0.073	0.191	69762	0.194	0.160	0.169	81446	-0.038 ***
Cash/TA	0.247	0.139	0.264	70258	0.132	0.069	0.163	82098	0.115 ***
Firm age (ln)	1.949	2.079	1.047	63877	2.642	2.773	1.074	79145	-0.693 ***
ROA	-0.001	0.081	0.286	66866	0.085	0.107	0.159	81278	-0.086 ***
Mtb	3.294	2.009	5.199	69591	2.601	1.816	4.023	81209	0.693 ***
R&D/TA	0.073	0.000	0.136	70266	0.024	0.000	0.060	82111	0.049 ***
Tobin's Q	2.202	1.462	2.038	67523	1.586	1.232	1.266	77295	0.616 ***
Payout	0.029	0.001	0.061	62389	0.029	0.011	0.050	76767	
Capex	0.063	0.032	0.089	59103	0.058	0.039	0.066	73971	0.005 ***
Sales growth	0.116	0.089	0.392	57681	0.078	0.065	0.310	74516	0.038 ***

Table 5: **Univariate test - Cumulative Abnormal Return.**
This table reports results of univariate tests of *Cumulative Abnormal Return (CAR)* following asset sale announcement. CAR has been calculated over the event window (-1, + 1) using the market model.Variable CAR has been winsorized at 1 percentile level. *Panel A* uses the full sample of divestitures. In *panel B*, CARs are calculated based on the type of asset sold. *Panel C* calculates CARs of divestment annopunced in industries depending if shock has occured or not. *Panel D* presents CARs of single and multi segment companies.

Variable	Mean	Median	N
Panel A: Full Database			
Cumulative Abnormal Return	1.40%	0.39%	3038
Panel B: Core Vs Non Core			
Cumulative Abnormal Return	1.45%	0.43%	2635
Cumulative Abnormal Return	1.06%	0.2429%	403
Panel C: Industry Vs No Industry Shock			
Cumulative Abnormal Return	2.02%	0.59%	336
Cumulative Abnormal Return	1.32%	0.35%	2702
Panel D: Single Vs Multi segment company sells			
Cumulative Abnormal Return	1.25%	0.29%	1887
Cumulative Abnormal Return	1.64%	0.58%	1151

Table 6: **Multivariate regression - Cumulative Abnormal Return.**
This table reports the results of multivariate regression where the dependant variable is *Cumulative Abnormal Return*, that has been calculated over the event window (-1, + 1) using the market model and winsorized at 1 percentile level. *Multi segment* are firms that report two business segments or more in Comp ustat, and segments are in different industries. *Single segment* are firms that report only one business segment in Compustat. Segment is *Core* if the value of its assets is at least 50 percent of the firm's total assets, or if its assets are greater than 25 percent of the firm's total assets, and there are no segments whose size is above 50 percent. *Divestment* is an indicator variable that takes value of 1 if company sold assets on a firm-segment level in a given year and 0 otherwise. Industry Shock is calculated as sales growth (based on Fama and French 48 industries) over a year from which then average sales growth from all 48 industries is subtracted. Indicator variable *Industry Shock* that equals one if the industry the firm operates in experiences a 10 percent or greater decrease in sales for the year. *Size* is the logarithm of he market capitalization, that is CPI-adjusted in 2010 dollars. *Market Leverage* is ratio of the sum of total long term debt (dltt) and current liabilities (dlc) over the sum of common shares outstanding (csho) multiplied by the closing price (prcc_f) and total assets (at) less common equity (ceq). *Cash* is ratio of cash and short term investments (che) to total assets (at). *Firm age* is the logarithm of the difference of sample year (fyear) and the year when company first appeared on CRSP. *ROA* is ratio of operating income before depreciation (oibdp) and total assets (at). *Mtb* is ratio of absolute value of price (abs(prc)) multiplied by common shares outstanding over common equity (ceq). *R&D* is calculated as research and Development expense (xrd) over total assets (at). *Tobin's Q* is calcualted as the sum of market capitalization (mktcap) and total assets (at) less the sum of common equity and deferred taxes that is then divided by total assets. *Payout* is sum of total dividends (dvt) and purchase of common and preferred stock (prstkc) divided by total assets (at). *Capex* is capital expenditure (capx) divided by the total assets (at) from period t-1. *Sales growth* is logarithm of sales in time t over sales in period t-1.

	Model 1	Model 2	Model 3	Model 4	Model 5
Multi segment company		0.0010		0.002	
		(0.0036)		(0.004)	
Core segment			-0.000		-0.003
			(0.004)		(0.004)
Multi segment industry Shock*				-0.013	
				(0.011)	
*Core*Industry Shock*					0.016
					(0.012)
Industry shock				0.014	-0.008
				(0.010)	(0.011)
Size	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Market Leverage	0.006	0.006	0.006	0.005	0.005
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Cash/TA	0.055***	0.055***	0.055***	0.057***	0.057***
	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)
Firm age (ln)	0.001	0.000	0.000	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
ROA	0.016	0.016	0.016	0.018	0.018
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Tobin's Q	0.001	0.001	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
R&D/TA	-0.091**	-0.089**	-0.090**	-0.087**	-0.088**
	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)
Sales growth	-0.019***	-0.019***	-0.019***	-0.018***	-0.018***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Payout	-0.035	-0.036	-0.035	-0.034	-0.035
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Capex	-0.013	-0.012	-0.013	-0.013	-0.015
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
WW Index	-0.019*	-0.019*	-0.019*	-0.018*	-0.020*
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Number of observations	2,545	2,545	2,545	2,545	2,545
Adjusted R2	0.039	0.038	0.038	0.039	0.039

note: .01 - ***; .05 - **; .1 - *;

Table 7: **Drivers of Value of Divestiture.**
This table reports the results of multivariate regression where dependent variable is Value of Divestment that is calculated as the natural logarithm of Value of Transaction, that comes from the Securities Data Company (SDC) transaction database. *Multi segment* are firms that report two business segments or more in Comp ustat, and segments are in different industries. *Single segment* are firms that report only one business segment in Compustat. Segment is *Core* if the value of its assets is at least 50 percent of the firm's total assets, or if its assets are greater than 25 percent of the firm's total assets, and there are no segments whose size is above 50 percent. *Divestment* is an indicator variable that takes value of 1 if company sold assets on a firm-segment level in a given year and 0 otherwise. Industry Shock is calculated as sales growth (based on Fama and French 48 industries) over a year from which then average sales growth from all 48 industries is subtracted. Indicator variable *Industry Shock* that equals one if the industry the firm operates in experiences a 10 percent or greater decrease in sales for the year. *Size* is the logarithm of he market capitalization, that is CPI-adjusted in 2010 dollars. *Market Leverage* is ratio of the sum of total long term debt (dltt) and current liabilities (dlc) over the sum of common shares outstanding (csho) multiplied by the closing price (prcc_f) and total assets (at) less common equity (ceq). *Cash* is ratio of cash and short term investments (che) to total assets (at). *Firm age* is the logarithm of the difference of sample year (fyear) and the year when company first appeared on CRSP. *ROA* is ratio of operating income before depreciation (oibdp) and total assets (at). *Mtb* is ratio of absolute value of price (abs(prc)) multiplied by common shares outstanding over common equity (ceq). *R&D* is calculated as research and Development expense (xrd) over total assets (at). *Tobin's Q* is calcualted as the sum of market capitalization (mktcap) and total assets (at) less the sum of common equity and deferred taxes that is then divided by total assets. *Payout* is sum of total dividends (dvt) and purchase of common and preferred stock (prstkc) divided by total assets (at). *Capex* is capital expenditure (capx) divided by the total assets (at) from period t-1. *Sales growth* is logarithm of sales in time t over sales in period t-1.

	Model 1	Model 2	Model 3	Model 4	Model 5
Multi-segment company		0.042***		0.045	
		(0.073)		(0.077)	
Core segment			0.156*		0.163*
			(0.089)		(0.099)
*Multi-segment*Industry Shock*				-0.032	
				(0.186)	
*Core*Industry Shock*					0.003
					(0.255)
Industry shock				0.152	0.140
				(0.141)	(0.241)
Size	0.398***	0.397***	0.400***	0.400***	0.404***
	(0.038)	(0.038)	(0.037)	(0.038)	(0.037)
Market Leverage	1.285***	1.287	1.282***	1.273***	1.268***
	(0.206)	(0.206)	(0.204)	(0.207)	(0.204)
Cash/TA	-0.225	-0.207***	-0.248	-0.202	-0.243
	(0.311)	(0.313)	(0.311)	(0.313)	(0.310)
Firm age (ln)	-0.046	-0.050***	-0.038	-0.050	-0.037
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
ROA	-0.822**	-0.816	-0.830**	-0.792**	-0.806**
	(0.244)	(0.245)	(0.244)	(0.245)	(0.245)
Tobin's Q	-0.098***	-0.097	-0.098***	-0.099***	-0.101***
	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)
R&D/TA	-0.313	-0.292**	-0.343	-0.273	-0.325
	(0.482)	(0.489)	(0.483)	(0.485)	(0.479)
Sales growth	-0.486***	-0.485***	-0.481***	-0.452***	-0.445***
	(0.105)	(0.105)	(0.105)	(0.108)	(0.107)
Payout	0.020	0.011	0.003	0.034	0.029
	(0.725)	(0.725)	(0.724)	(0.725)	(0.724)
Capex	0.918**	0.955***	0.864**	0.919**	0.825**
	(0.379)	(0.394)	(0.377)	(0.396)	(0.380)
WW Index	-3.107***	-3.103***	-3.087***	-2.996***	-2.968***
	(0.978)	(0.978)	(0.969)	(0.975)	(0.963)
Number of observations	2,401	2,401	2,401	2,401	2,401
Adjusted R2	0.390	0.390	0.391	0.390	0.391

note: .01 - ***; .05 - **; .1 - *;

Table 8: **Logit Regression.**
This table presents result of logit regression with binary variable Divestment dummy that takes value 1 if there was asset sale and 0 otherwise. *Asset Sales* are defined as any divestiture or sell-off of business segment, product lines, investment assets and property, plant and equipment. *Multi segment* are firms that report two business segments or more in Comp ustat, and segments are in different industries. *Single segment* are firms that report only one business segment in Compustat. Segment is *Core* if the value of its assets is at least 50 percent of the firm's total assets, or if its assets are greater than 25 percent of the firm's total assets, and there are no segments whose size is above 50 percent. *Divestment* is an indicator variable that takes value of 1 if company sold assets on a firm-segment level in a given year and 0 otherwise. Industry Shock is calculated as sales growth (based on Fama and French 48 industries) over a year from which then average sales growth from all 48 industries is subtracted. Indicator variable *Industry Shock* that equals one if the industry the firm operates in experiences a 10 percent or greater decrease in sales for the year. *Size* is the logarithm of he market capitalization, that is CPI-adjusted in 2010 dollars. *Market Leverage* is ratio of the sum of total long term debt (dltt) and current liabilities (dlc) over the sum of common shares outstanding (csho) multiplied by the closing price (prcc_f) and total assets (at) less common equity (ceq). *Cash* is ratio of cash and short term investments (che) to total assets (at). *Firm age* is the logarithm of the difference of sample year (fyear) and the year when company first appeared on CRSP. *ROA* is ratio of operating income before depreciation (oibdp) and total assets (at). *Mtb* is ratio of absolute value of price (abs(prc)) multiplied by common shares outstanding over common equity (ceq). *R&D* is calculated as research and Development expense (xrd) over total assets (at). *Tobin's Q* is calcualted as the sum of market capitalization (mktcap) and total assets (at) less the sum of common equity and deferred taxes that is then divided by total assets. *Payout* is sum of total dividends (dvt) and purchase of common and preferred stock (prstkc) divided by total assets (at). *Capex* is capital expenditure (capx) divided by the total assets (at) from period t-1. *Sales growth* is logarithm of sales in time t over sales in period t-1.

	Model 1	Model 2	Model 3	Model 4	Model 5
Multi-segment company		-0.379***		-0.383***	
		(0.063)		(0.065)	
Core segment			0.845***		0.896***
			(0.075)		(0.082)
*Multi-segment*Industry Shock*				-0.207	
				(0.139)	
*Core*Industry Shock*					-0.167
					(0.180)
Industry shock				0.207*	0.211
				(0.111)	(0.165)
Size	0.251***	0.265***	0.266***	0.279***	0.281***
	(0.016)	(0.016)	(0.016)	(0.017)	(0.016)
Market Leverage	1.661***	1.660***	1.699***	1.794***	1.833***
	(0.164)	(0.161)	(0.162)	(0.164)	(0.164)
Cash/TA	-1.568***	-1.698***	-1.696***	-1.565***	-1.552***
	(0.199)	(0.200)	(0.200)	(0.200)	(0.199)
Firm age (ln)	0.114***	0.155***	0.158***	0.156***	0.158***
	(0.028)	(0.029)	(0.028)	(0.029)	(0.029)
ROA	-1.022***	-1.058***	-1.096***	-1.129***	-1.181***
	(0.174)	(0.173)	(0.171)	(0.174)	(0.172)
Tobin's Q	-0.115***	-0.128***	-0.128***	-0.135***	-0.137***
	(0.027)	(0.0274)	(0.027)	(0.028)	(0.028)
R&D/TA	2.470***	2.308***	2.320***	2.2357***	2.225***
	(0.384)	(0.383)	(0.382)	(0.38)	(0.383)
Sales growth	-0.397***	-0.398***	-0.385***	-0.449***	-0.439***
	(0.075)	(0.076)	(0.075)	(0.078)	(0.078)
Payout	-0.128	-0.207	-0.227	0.022	0.005
	(0.540)	(0.54)	(0.539)	(0.534)	(0.532)
Capex	2.089***	1.923***	1.969***	1.82***	1.879***
	(0.344)	(0.333)	(0.337)	(0.339)	(0.345)
Year Fixed Effect	no	no	no	yes	yes
Number of observations	110,113	110,113	110,113	110,113	110,113
Pseudo R2	0.055	0.058	0.065	0.062	0.070

note: .01 - ***; .05 - **; .1 - *;

Table 9: **Drivers of Core Assets.**
This table presents results of multivariate regression of core asset on the list of explanatory variables. Dependant variable *Core Assets* is calculated as the size of core assets over firm's total assets. *Size* is the logarithm of he market capitalization, that is CPI-adjusted in 2010 dollars. *Market Leverage* is ratio of the sum of total long term debt (dltt) and current liabilities (dlc) over the sum of common shares outstanding (csho) multiplied by the closing price (prcc_f) and total assets (at) less common equity (ceq). *Cash* is ratio of cash and short term investments (che) to total assets (at). *Firm age* is the logarithm of the difference of sample year (fyear) and the year when company first appeared on CRSP. *ROA* is ratio of operating income before depreciation (oibdp) and total assets (at). *Mtb* is ratio of absolute value of price (abs(prc)) multiplied by common shares outstanding over common equity (ceq). *R&D* is calculated as research and Development expense (xrd) over total assets (at). *Tobin's Q* is calcualted as the sum of market capitalization (mktcap) and total assets (at) less the sum of common equity and deferred taxes that is then divided by total assets. *Payout* is sum of total dividends (dvt) and purchase of common and preferred stock (prstkc) divided by total assets (at). *Capex* is capital expenditure (capx) divided by the total assets (at) from period t-1. *Sales growth* is logarithm of sales in time t over sales in period t-1. *Divestment dummy* takes value 1 if there was asset sale and 0 otherwise. Indicator variable *Industry Shock* that equals one if the industry the firm operates in experiences a 10 percent or greater decrease in sales for the year. *WW Index* is the index that measures level of financial constraint of a firm. It is calculated using the formula from Whited and Wu (2006).

	Model 1	Model 2	Model 3
Size	-0.007***	-0.007***	-0.007***
	(0.000)	(0.000)	(0.000)
Market Leverage	-0.027	-0.027	-0.027
	(0.001)	(0.001)	(0.001)
Cash/TA	-0.019	-0.019	-0.019
	(0.001)	(0.001)	(0.001)
Firm age (ln)	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)
ROA	-0.056*	-0.056*	-0.056*
	(0.001)	(0.001)	(0.001)
Tobin's Q	0.006	0.006	0.006
	(0.000)	(0.000)	(0.000)
R&D/TA	-0.010***	-0.010***	-0.010***
	(0.001)	(0.001)	(0.001)
Sales growth	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)
Payout	0.033***	0.033***	0.033***
	(0.002)	(0.002)	(0.002)
Capex	0.002	0.002***	0.002***
	(0.001)	(0.001)	(0.001)
Divestment dummy	0.002	0.002	0.002
	(0.001)	(0.001)	(0.001)
WW Index		0.000	0.000
		(0.000)	(0.000)
Industry Shock dummy			-0.001***
			(0.000)
Number of observations	110,113	110,113	110,113
Adjusted R2	0.410	0.410	0.410

note: .01 - ***; .05 - **; .1 - *;

Table 10: **Variable Definition**

Variable	Description
Asset Sales	Asset sales are any divestiture or sell-off of business segment, product lines, investment assets and property, plant and equipment.
Value of asset sales	It is calculated as the natural logarithm of Value of Transaction, that comes from the Securities Data Company (SDC) transaction database.
Core Asset	Segment is a core if the value of its assets is at least 50 percent of the firm's total assets, or if its assets are greater than 25 percent of the firm's total assets, and there are no segments whose size is above 50 percent.
Multi segment firm	Firms that report two business segments or more in Compustat, and segments are in different industries.
Single segment firm	Firms that report only one business segment in Compustat.
Industry Shock	It is calculated as sales growth (based on Fama and French 48 industries) over a year from which then average sales growth from all 48 industries is subtracted. Indicator variable Industry Shock that equals one if the industry the firm operates in experiences a 10% or greater decrease in sales for the year.
CAR	Cumulative abnormal returns over three days surrounding the announcement (-1, +1) using Market Model.
Size	It is the logarithm of he market capitalization, that is CPI-adjusted in 2010 dollars.
Market Leverage	Ratio of the sum of total long term debt (dltt) and current liabilities (dlc) over the sum of common shares outstanding (csho) multiplied by the closing price (prcc_f) and total assets (at) less common equity (ceq).
Cash/TA	Ratio of cash and short term investments (che) to total assets (at).
Firm age (ln)	Is the logarithm of the difference of sample year (fyear) and the year when company first appeared on CRSP.
ROA	Ratio of operating income before depreciation (oibdp) and total assets (at).
Mtb	Ratio of absolute value of price (abs(prc)) multiplied by common shares outstanding over common equity (ceq).
R&D/TA	Research and Development expense (xrd) over total assets (at).
Tobin's Q	Calcualted as the sum of market capitalization (mktcap) and total assets (at) less the sum of common equity and deferred taxes that is then divided by total assets.
Payout	Sum of total dividends (dvt) and purchase of common and preferred stock (prstkc) divided by total assets (at).
Capex	Capital expenditure (capx) divided by the total assets (at) from period t-1.
Sales Growths	Logarithm of sales in time t over sales in period t-1.
WW Index	Calculated using the equation: $-0.091 * ww\_cf - 0.062 * ww\_div\_dummy + 0.021 * ww\_lev - 0.044 * size\_sa + 0.102 * ww\_isg - 0.035 * ww\_sg$ from Whited and Wu (2006).
WW_Cash flow	Defined as (operating income plus depreciation)/beginning-of-year book assets.
The WW_dividend dummy	Variable indicating positive preferred or common dividends.
WW_Leverage	Defined as (book value of longterm debt)/current book assets.
WW_Size	Defined as the log of inflation adjusted (to 2004) assets.
WW_Industrysales growth	Defined as the most recent annual percentage change in inflation-adjusted three-digit industry sales.
Firm sales growth	The firm's most recent annual percentage change in inflation-adjusted sales.