Norwegian School of Economics

Bergen, Fall, 2018

The Effect of Foreign Cash Holdings on Returns During Repatriation Tax Holidays

- *A Study of the American Jobs Creation Act of 2004*

Ole August Krutnes & Steinar Rinvik Spinnangr

Supervisors: Evelina Gavrilova-Zoutman & Floris Zoutman

Master thesis, Financial Economics, FIE

NORWEGIAN SCHOOL OF ECONOMICS

This thesis was written as a part of the Master of Science in Economics and Business Administration at NHH. Please note that neither the institution nor the examiners are responsible − through the approval of this thesis − for the theories and methods used, or results and conclusions drawn in this work.

Abstract

On October 22, 2004, President George W. Bush enacted a repatriation tax holiday under the American Jobs Creation Act. It allowed companies incorporated in the U.S. to repatriate foreign earnings at a reduced effective tax rate of 5.25 percent, instead of the usual 35 percent tax rate. In this thesis, we analyze *how the level of foreign cash holdings relative to company size affect the company returns during the American Jobs Creation Act of 2004?*

To answer our research question we conduct two event studies. The first event study is the introduction date of the American Jobs Creation Act on June 4, 2004, whilst the second, October 22, 2004, is the date the act was enacted into law. We use hand collected permanently reinvested earnings data as a proxy for foreign cash holdings and investigate how different levels of permanently reinvested earnings affect cumulative abnormal returns during the two events. We study S&P 500 companies as many of these companies repatriated foreign earnings during the repatriation tax holiday.

Intuitively, we expected that companies with a higher level of foreign cash holdings relative to size would outperform companies with a lower level of foreign cash holdings. However, based on our results, we cannot conclude that the level of foreign cash holdings had an effect on the cumulative abnormal returns. We believe that there are mainly two reasons for these results. First, it could be that different levels of permanently reinvested earnings, our proxy, should affect the cumulative abnormal returns, but that this is not captured in our model. Second, it could simply be that different levels of permanently reinvested earnings do not affect cumulative abnormal returns as investors prioritize other measures when evaluating the effects of the repatriation tax holiday on companies.

Preface

We conducted this master thesis during the fall of 2018. It is the concluding work of our Master of Science degrees with specialization in Financial Economics at the Norwegian School of Economics.

It provided us with the opportunity to independently combine theory and practical methods to a subject of interest we could devote our undivided attention to throughout the semester.

We would like to thank our supervisors, Evelina Gavrilova-Zoutman and Floris Zoutman, for invaluable discussions and guidance throughout the semester. We are grateful to the Norwegian Center of Taxation and the Norwegian Tax Authority for the support and feedback given throughout the process. Lastly, we wish to express our gratitude to the Norwegian School of Economics for providing years of excellent education and opportunities.

Bergen, December 14, 2018

Ole August Krutnes Steinar Rinvik Spinnangr

Table of Contents

List of Tables

List of Figures

1. Introduction

1.1 Background

U.S. corporations keep billions of dollars abroad to avoid paying taxes on the earnings they repatriate from their foreign subsidiaries (de Leeuw, 2016; Foley et. al, 2006). A repatriation tax holiday is a temporary reduction or elimination of the repatriation tax rate. In other words, it is a brief window of time where corporations can bring home their foreign earnings at a discount. The government's objective with a repatriation tax holiday is that corporations use the repatriated earnings to invest domestically, which consequently contributes to domestic growth (Harford et. al, 2016).

The current President of the U.S., Donald J. Trump and the U.S. Congress recently enacted a repatriation tax holiday under the Tax Cuts and Jobs Act (TCJA) of 2017. The TCJA took on full effect on January 1, 2018, allowing companies incorporated in the U.S. to repatriate foreign earnings at a reduced tax rate of 15.5 percent, instead of the usual 35 percent corporate tax rate (Tax Cuts and Jobs Act of 2017). To understand how such a tax relief affects the stock return of companies with different levels of foreign cash holdings we will analyze what happened the previous time a U.S. President enacted such a tax relief.

The last time a U.S. repatriation tax holiday was proposed was on June 4, 2004, during George W. Bush's first presidential term. President Bush enacted it into law under the American Jobs Creation Act (AJCA) section 965 on October 22, 2004. The repatriation tax holiday allowed companies incorporated in the U.S. to repatriate foreign earnings at a reduced effective tax rate of 5.25 percent, instead of the usual 35 percent tax rate (American Jobs Creation Act of 2004).

Under this act, American corporations with operations abroad, among them Hewlett-Packard, Pepsi and Pfizer, repatriated a total of $312 billion (Appendix C2). Consequently, the repatriation tax holiday cost the U.S. treasury a net revenue loss of $3.3 billion over a ten-year period. The AJCA repatriation tax holiday has been criticized in the past due to its negative outcome on the U.S. economy (Clemons & Kinney, 2008). This is because most of the repatriating corporations used the repatriated earnings to repurchase shares and pay out dividends instead of increasing domestic investments (Levin, et al., 2011).

1.2 Research Question

In this thesis, we analyze *how the level of foreign cash holdings relative to company size affect the company returns during the American Jobs Creation Act of 2004*.

Based on previous research and theory, our hypothesis is that American companies with a higher level of foreign cash holdings relative to size outperform companies with a lower level of foreign cash holdings during the AJCA. Our hypothesis builds on valuation theory and repatriation theory, which we will describe in the third section of this thesis.

1.3 Research Methodology

To test our hypothesis we will conduct two event studies. Each event study tracks the daily returns of certain Standard & Poor's 500 Composite Index (S&P 500) constituents during two different windows of time before and during the actual events. We focus on analyzing companies on the S&P 500 because most corporations that took advantage of the AJCA repatriation tax holiday were listed on this index at the time (Cox, 2017). We analyze the following two events in this thesis:

- June 4, 2004, the date the AJCA was first introduced in the United States House of Representatives.
- October 22, 2004, the date President Bush enacted the AJCA-bill into law.

We use the companies' permanently reinvested earnings (PRE) as a proxy for foreign cash holdings. PRE are foreign earnings that companies have not remitted back to the home country and are classified as indefinitely reinvested abroad. Since PRE are nominal numbers, which do not necessarily help explain the effect in terms of return, we create a company-specific ratio by dividing the company's PRE by its total assets. This ratio is hereafter known as the PRE-ratio[1].

To conduct the two event studies, we access company and market specific financial data via the Wharton Research Data Services (WRDS). We extract the relevant data from the Center for Research in Security Prices (CRSP), Compustat and Bloomberg databases. Obtaining the

[1] $PRE\text{-}ratio = \frac{PRE}{Total\ Assets}$

PRE-data of the S&P 500 constituents represents a challenge, as we cannot easily extract this data from any of the databases. We must therefore hand collect the PRE-data from their 10-Ks. To predict the expected returns, we use the Capital Asset Pricing Model (CAPM) and Carhart Four-Factor Model (Carhart-model). We will also use these predictions to generate the relevant constituents' cumulative abnormal returns. Lastly, we regress the cumulative abnormal returns as a dependent variable against an independent variable consisting of the PRE-ratio during the two events to assess whether the market reaction to the events can be attributed to the foreign cash holdings of the constituents.

1.4 Structure

We structure the remaining content of the thesis in the following way. In the next section, we define topic-related concepts and conduct a literature review. In the third section, we derive the hypothesis of the thesis while further elaborating on the event study methodology in the fourth section. The fifth section involves the data collection process and explains how we acquire the relevant data we use in the analysis. Furthermore, the sixth section includes the data analysis. In the seventh section, we conduct robustness tests to see how changes in the specifications of our model affect our results. In the final section of the report, we give a summary and conclude on the findings from the data analysis.

2. Fundamental Concepts and Literature Review

In this section of the thesis, we first present fundamental concepts in relation to the study. We then present the literature review, which contains previously conducted research relevant to the thesis. Based on our research, there has not been any similar studies analyzing the effect foreign cash holdings relative to company size have on returns during the AJCA. Finally, we will present the contributions of the study.

2.1 Fundamental Concepts

The concepts that we will define are taxation systems and repatriation tax holidays. We will also further elaborate on the repatriation tax holiday under the AJCA since the two events that we will study occurred as a direct consequence of this act.

2.1.1 Taxation Systems

There are mainly two different taxation systems. A territorial taxation system and a worldwide taxation system. In a territorial system, companies only pay taxes on income that they earn domestically. In the worldwide system, corporations' earnings generated from foreign operations are taxed alike earnings generated from domestic operations. The U.S. applies the worldwide taxation system. However, U.S. corporations can defer taxes on foreign earnings until these are repatriated. When these earnings are repatriated, they will have to pay repatriation taxes similar to the corporate taxes on earnings (Dittmer, 2012).

2.1.2 Repatriation Tax Holiday

A repatriation tax holiday is a temporary reduction or elimination of the repatriation tax, which multinational companies under the worldwide taxation system pay on the foreign earnings they repatriate. The main objective of a repatriation tax holiday is to stimulate the economy of the home country by expediting the process in which foreign earnings are repatriated and then fueled into the home country's economy (Clemons & Kinney, 2008).

2.1.3 The Repatriation Tax Holiday Under the American Jobs Creation Act

The repatriated earnings to the U.S. under the AJCA were entitled as "dividends paid by a controlled foreign corporation (CFC)". Corporations that qualified for the AJCA repatriation

tax holiday were exempt from paying repatriation taxes on 85 percent of the dividends paid by their CFCs. Thus, the effective repatriation tax rate that was paid on the repatriated earnings was 5.25 percent[2]. The corporations that qualified for the reduced effective repatriation tax rate of 5.25 percent could take advantage of this for one year only, in either 2004, 2005 or 2006.

To qualify for the repatriation tax rate reduction, corporations had to commit to using the repatriated funds to increase domestic investments and boost the U.S. economy. The repatriating corporations were prohibited from using the repatriated funds to pay out dividends, perform share repurchases and to pay out executive compensations (Blouin & Krull, 2009). Furthermore, there were limitations regarding the amount that corporations were allowed to bring back, which are described in the extract of the AJCA below. Here, "dividends" refers to dividends paid by CFCs.

> *"In GENERAL - The amount of dividends taken into account under subsection (a) shall not exceed the greater of -*
>
> *(A) $500,000,000,*
>
> *(B) the amount shown on the applicable financial statement as earnings permanently reinvested outside the United States, or*
>
> *(C) in the case of an applicable financial statement which fails to show a specific amount of earnings permanently reinvested outside the United States and which shows a specific amount of tax liability attributable to such earnings, the amount equal to the amount of such liability divided by 0.35"* (American Jobs Creation Act of 2004).

This means that companies that reported neither PRE nor a tax liability to such earnings could remit a total of $500 million at the reduced tax rate. If PRE were reported, all of it could be remitted. If a tax liability was reported, the amount this was based on could be remitted[3].

[2] $0.85 * 0 + (1 - 0.85) * 0.35 = 0.0525$

[3] $The\ Maximum\ Amount\ Allowed\ to\ Remit = \frac{Deferred\ tax\ liability}{0.35}$

2.2 Literature Review

As a consequence of Bush and Trump's repatriation tax holidays, there has been some research published on the topic. Multiple studies have been analyzing what the consequences of the AJCA were (Albring et al., 2005; Blouin & Krull, 2009; Foley et al., 2006; Levin, et al., 2011). Levin et al. (2011) found that the repatriation tax holiday under the AJCA was a failed tax policy, as the objectives, such as increasing domestic investments, were not achieved.

Dharmapala et al. (2011) and Clemons & Kinney (2008) show that the AJCA tax holiday did not have its intended consequences. Dharmapala et al. (2011) claim that a $1 increase in repatriations was associated with a $0.60 to $0.92 increase in shareholder payouts. Clemons & Kinney (2008) argue that the act ineffectively influenced firms to spend the repatriated funds on growth opportunities, which in reality were not there. Whilst Dharmapala et al. (2011) did not find any increase in investments due to repatriation, Faulkender & Petersen (2012) conclude that the AJCA led to large increases in investments, but only among the subset of firms that were capital constrained.

Foley et al. (2006) argue that companies, which would offset large tax-expenses by repatriating foreign earnings, in general have higher consolidated cash holdings. This is further emphasized in the study by showing that affiliates in low-tax countries hold more cash than their counterparts in high-tax countries. Thus, holding cash in low-tax countries implies a higher repatriation-tax burden.

Empirical studies analyze the effects of the AJCA and the characteristics of the repatriating firms (Albring et al., 2005; Blouin & Krull, 2009). Albring et al. (2005) find that the firms in their study would save $39 billion if they repatriated all the PRE during the AJCA, leading to an incremental tax of $7 billion on immediate repatriation. The authors use a similar method to ours to collect estimates on PRE, but focus only on the tax savings (loss for the public) aspect, whilst this thesis will look at the valuation aspect.

Blouin & Krull (2009) also look at the AJCA from a non-valuation point of view. They estimate that repatriating firms increased share repurchases by approximately $60 billion more than non-repatriating firms. This is about 20 percent of the $291.6 billion repatriated by the firms in the study's sample. Although it was not allowed to use the repatriated funds to repurchase shares, it likely affected the returns later on, as share repurchases are a practical method to distribute a one-time positive shock in the cash flow (Guay & Harford, 2000).

Baghai (2012) analyzes whether repatriating well-governed companies outperformed repatriating weakly governed companies with regards to abnormal returns on the enactment date of the AJCA. The author finds that there were no significant effects for the group of well-governed firms, whilst the shareholders of weakly governed U.S. multinational firms reacted negatively to the enactment of the AJCA.

Wagner et al. (2017) look into the stock return of companies after Trump's victory in the 2016 presidential election. The rationale for their event study was that the expectations now shifted towards lower corporate taxes and more restrictive trade policies. The authors find that the domestically oriented companies did better than internationally oriented firms did. Further, high-tax firms and those with large deferred tax liabilities gained market share, as opposed to those with significant deferred tax assets from net operating loss carryforwards. Even though this is a different event than ours, they both result in lower taxes. Looking at the effective tax rate, as Wagner et al. (2017) do, differs from our study as it does not give any explicit indication about foreign cash holdings.

Wagner et al. (2018) take a closer look at Trump's Corporate Tax Reform. The study finds that the aggregate market responded positively to lower expected repatriation taxes. Further, the internationally oriented firms suffered notably, since investors assessed that the benefits from territorial taxation were outweighed by the surprisingly high repatriation. Once again, the authors use the effective tax rate of companies as a proxy for foreign exposure.

Our study contributes to the already existing literature in several ways. The variable PRE is an interesting measure to examine, as it is rarely used in studies on this subject, even though companies have large sums of earnings permanently reinvested abroad. Since one of the determinants of how much companies could repatriate were the PRE, we expect this to be a good explanatory variable in how the constituents' stock returns reacted to the AJCA. Furthermore, there is little research on the introduction of the AJCA in the U.S. House of Representatives. This is an interesting event to investigate, as there could have been rumors affecting the stock prices of the constituents before the bill was enacted into law. This is less likely at the time of the introduction of the bill.

3. Theory and Hypothesis

In this section of the thesis, we will elaborate on important theories such as repatriation theory and valuation theory, which we will apply to construct our hypothesis. Both theories maximize shareholder value and lead to identical conclusions, which bolster our hypothesis.

3.1 Repatriation Theory

For U.S. corporations to determine whether to repatriate or reinvest their foreign earnings they have to consider three factors. U.S. taxes on the potential repatriated earnings, potential future taxes abroad and any implicit taxes paid by choosing a tax-favored option that has a lower pre-tax rate of return (Oler, 2007).

The repatriation theory, described in the equation below, assumes that all foreign earnings eventually will be repatriated. DIV represents the total amount of dividends that a company repatriates. The variable t_d is the U.S. tax rate and t_f is the foreign tax rate. Furthermore, r_d is the U.S. after-tax rate of return, while r_f is the foreign after-tax rate of return. Variable T represents the portion of the DIV that is taxed (Oler, 2007). Normally, T is 1 as all of the dividends are taxed at 35 percent. However, during the AJCA, T was 0.15 because only 15 percent of the dividends were taxed.

$$\left(DIV - \left(T * \frac{DIV}{(1-t_f)}(t_d - t_f)\right)\right) * (1+r_d)^n \geq \frac{DIV(1-t_d)}{(1-t_f)}(1+r_f)^n$$

The left-hand side of the equation above represents what is left of the dividend if repatriated during the tax holiday and reinvested in the U.S. at r_d for n periods. Furthermore, the right-hand side of the equation represents what is left of the dividend if reinvested abroad at r_f for n periods and then repatriated at the normal repatriation tax rate of 35 percent. If the dividend value on the left-hand side of the equation is greater than the value on the right-hand side it is beneficial to repatriate during the tax holiday instead of repatriating later.

For example, if a corporation can repatriate 100 million of foreign cash holdings (DIV=100) during the AJCA repatriation tax holiday (T=0.15), and we assume that $r_d = r_f = 0.05$, $t_d = 0.35$ and $t_f = 0.15$, the company would gain 32.54 million from the tax holiday, which would

increase the company value. The difference between the left-hand side and the right-hand side represents the change in company value.

$$\left(100 - \left(0.15 * \frac{100}{(1-0.15)}(0.35-0.15)\right)\right) * (1+0.05)^{10} \geq \frac{100(1-0.35)}{(1-0.15)}(1+0.05)^{10}$$

$$157.14 \geq 124.60$$

From the calculation above, we see that the increase in company value is 32.54 million. If *T*=1, as it usually is, the value on the left-hand side would also be 124.60 million, due to our assumptions. Based on the repatriation theory, taxing only 15 percent of the dividends increases the value of the company and hence shareholder value, which is good for investors. Furthermore, the companies with the largest holdings of foreign cash compared to company size should gain the most and experience the sharpest relative increase in value (returns). This increase in shareholder value during a repatriation tax holiday can also be illustrated through valuation theory.

3.2 Valuation Theory

The discounted cash flow method is one of the most applied valuation techniques. The method discounts all free cash flows (FCF) available to all investors at the weighted average cost of capital (Koller et al., 2015).

$$FCF = NOPLAT + OPEX - \Delta IC$$

In its simplest form, the FCF is decomposed into net operating profit less adjusted taxes (NOPLAT) plus non-cash operating expenses (OPEX) minus the net investments in invested capital (ΔIC), as illustrated in the equation above. Consequently, a higher FCF leads to a higher valuation of the company, ceteris paribus.

During a repatriation tax holiday the repatriation tax rate decreases, thus, taxes paid decrease and the NOPLAT increases, leading to an increase in the FCF. Consequently, the value of the company should also increase. Based on this theory we expect the value of the repatriating companies to increase by the amount of the saved tax costs. This is equal to the increase in value of repatriated earnings as seen in the repatriation theory (32.54 million in the example

above). The companies with the highest amounts of PRE relative to company size will therefore save the most and have the highest returns.

3.3 Hypothesis

We have one hypothesis that we want to test in our study. Based on the aforementioned theories and assumptions, we believe that companies with a higher level of foreign cash holdings relative to size will have higher cumulative abnormal returns compared to companies with a lower level of foreign cash holdings.

4. Event Study Methodology

An event study measures the impact a specific event has on the value of corporations. In finance, event studies typically examine mergers and acquisitions, earnings announcements and issues of new debt or equity (MacKinlay, 1997).

In this section, we describe the event study methodology and the specific methods that we use in the data analysis. The event study methodology includes concepts such as defining the event and calculating expected returns, abnormal returns and cumulative abnormal returns during the event. Lastly, we explain the typical regression that is used to test the effect of the event on the cumulative abnormal returns.

4.1 Defining the Event

MacKinlay (1997) states that the initial task when conducting an event study is to define the event and determine which time periods that will be examined. This is a critical task as a potential issue with an event study is event date uncertainty, which occurs if there is uncertainty related to when the market was informed about the event.

Usually, two time windows are created during an event study. The estimation window represents a normal period before the event (Figure 1: T0 – T1). The expected returns during the event are calculated based on the estimation window data. Moreover, the event window consists of a number of days up until the time of the event and a number of days after the event. (Figure 1: T1 – T2) (MacKinlay, 1997). We will describe the two events that we will analyze in this study in the data analysis section of the report.

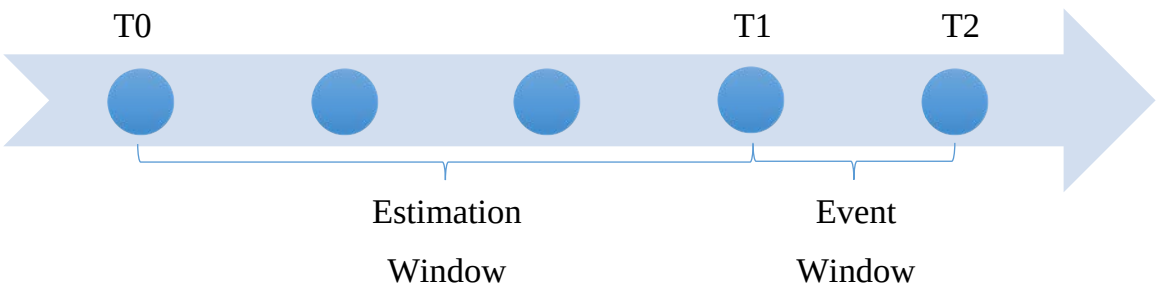


Figure 1 - Time Windows in an Event Study

4.2 Methods to Calculate the Expected Returns

Two possible methods to calculate the expected returns, which in turn yield the abnormal returns during the event, are the CAPM and the Carhart-model. The expected returns in the event window are calculated based on factors from the estimation window. The estimation window should not overlap with the event window, because it is necessary with an unbiased set of observations. In other words, we do not want the event to influence the expected returns generated based on the estimation window data.

The expected returns are thus a prediction based on historical estimated factor loadings interacting with observed factors in the event window. We will elaborate on the theory behind the two models used in the following paragraphs of the thesis.

4.2.1 The Capital Asset Pricing Model

The CAPM calculates an expected return for assets based on the asset's sensitivity to systematic risk. If the actual return is greater than the CAPM expected return, the asset generates an abnormal return.

$$(R_{i,\tau} - r_{f,\tau}) = \alpha_i + \beta_i(R_{M,\tau} - r_{f,\tau}) + \varepsilon_{i,\tau}$$

From the CAPM-equation above, $(R_{i,\tau} - r_{f,\tau})$ is the return of asset *i*, at time τ, above the risk-free return. In the equation above, α_i measures the historical performance of the security relative to the expected return. It can be interpreted as a risk-adjusted measure of the stock's historical performance. Further, the company's β_i reflects how the asset moves compared to the market. We see that β_i is part of a function with the market risk premium, $(R_{M,\tau} - r_{f,\tau})$. If β_i equals one, asset *i* moves equally to the market in terms of return and therefore possesses the same degree of risk as the market. A β_i lower than one implies that asset *i* is less volatile than the market and the expected return is thus lower than the market. Furthermore, a β_i greater than one implies that asset *i* is more volatile than the market and the expected return is thus higher than the market return. Finally, the error term, $\varepsilon_{i,\tau}$, reflects the abnormal return (Berk & DeMarzo, 2017).

To calculate the expected returns using the CAPM, one has to generate estimates of α_i and β_i for each company *i* in the estimation window and use them in combination with the market risk premium during the event.

4.2.2 The Carhart Four-Factor Model

The Carhart-model is an expansion of the Fama-French Asset Pricing Model, and will be used in addition to the CAPM to calculate expected returns. The model is shown below.

$$\left(R_{i,\tau} - r_{f,\tau}\right) = \alpha_i + \beta_{i,M}\left(R_{M,\tau} - r_{f,\tau}\right) + \beta_{i,SMB}(SMB_\tau) + \beta_{i,HML}(HML_\tau) + \beta_{i,UMD}(UMD_\tau) + \varepsilon_{i,\tau}$$

The model says that the company stock return over the risk-free rate $\left(R_{i,\tau} - r_{f,\tau}\right)$ is based on the market risk premium, size, value and momentum. $\left(R_{M,\tau} - r_{f,\tau}\right)$ is the market risk premium and controls for market risk by measuring how the stock performs compared to the overall market. Fama & French (1992) found that small companies in terms of market capitalization tend to outperform big companies. Size is controlled for by including the SMB factor. Furthermore, they also found that high book-to-market stocks tend to outperform low book-to-market stocks. The HML factor in the Carhart-model controls for value. Carhart (1997) conducted further research and built on the findings of Fama and French. He found that stocks that have been rising in the past are expected to continue rising, whilst stocks that have been falling in the past tend to continue falling. The momentum factor UMD controls for this finding. Finally, the Carhart-model also includes $\alpha_{i,\tau}$ and $\varepsilon_{i,\tau}$, which are interpreted in the same way as in the CAPM.

To calculate the expected returns using the Carhart-model, one has to generate estimates of the factor loadings for each company *i* in the estimation window. The factor loadings are then used in combination with the Fama-French-Carhart factors during the event to generate the expected returns.

4.3 Calculating the Abnormal Returns

In order to assess the event's impact on the company returns it is necessary to measure the abnormal returns during the event window. The expected returns are used to calculate abnormal returns during the event.

$$AR_{i,\tau} = \left(R_{i,\tau} - r_{f,\tau}\right) - E\left[R_{i,\tau}\middle|\left(R_{M,\tau} - r_{f,\tau}\right)\right]$$ [4]

$$AR_{i,,\tau} = \varepsilon_{i,\tau}$$

Abnormal return is the difference between the actual return during the event and the expected return during the event. It is the return generated that cannot be explained by our models, and is equal to $\varepsilon_{i,\tau}$ in both the CAPM and the Carhart-model. $AR_{i,\tau}$, $\left(R_{i,\tau} - r_{f,\tau}\right)$ and $E\left[R_{i,\tau}\middle|\left(R_{M,\tau} - r_{f,\tau}\right)\right]$ is the abnormal return, actual return less the risk-free rate and expected return for asset i at time τ, respectively. The expected returns calculated in the previous subsection are used in the equation above. Positive abnormal returns signalize that the stock outperforms itself whilst negative abnormal returns reflect the opposite.

4.4 Calculating the Cumulative Abnormal Returns

The next step in an event study is to use the abnormal returns to calculate the cumulative abnormal returns in the event window. The method for calculating the cumulative abnormal returns is the same when both using the CAPM expected returns and the Carhart expected returns. This process involves aggregating the abnormal returns.

$$CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{i,\tau}$$

As shown in the equation above, company *i*'s cumulative abnormal return $(CAR_i(\tau_1, \tau_2))$ at time τ_2 is the sum of all of company *i*'s abnormal returns from τ_1 up until time τ_2. τ_1 represents the first day of the event window.

4.5 Hypothesis Testing

To test the impact of the event we must construct an ordinary least squares regression.

$$CAR_{i,\tau}(\tau_1, \tau_2) = \beta_0 + \beta_1 D_\tau + \beta_2\left(D_\tau * X_{i,\tau}\right) + \varepsilon_{i,\tau}$$

We create an event dummy, D_τ. The event dummy is not activated and thus has a value of zero before the event date. Moreover, it is activated with value one at the time of the event and

[4] For the Carhart-model the expected returns are also conditional on *SMB, HML, and UMD.*

after. For reasons discussed later, it is not relevant for us to test the effect of β_1. Instead, we use the event study to test the effect the $X_{i,\tau}$ variable has on the cumulative abnormal returns during the event by testing for the significance of β_2.

$$H_0: \beta_2 = 0$$

$$H_A: \beta_2 \neq 0$$

If we reject the null hypothesis, we conclude that variable $X_{i,\tau}$ has an effect on the company's cumulative abnormal returns in the event window. On the other hand, if we are not able to reject the null hypothesis, we cannot conclude that $X_{i,\tau}$ has an effect on the cumulative abnormal returns in the event window.

5. Data Collection Process

Most of the data we extract is from the CRSP and Compustat databases. In addition, we manually extract the PRE-data from the constituents' 10-Ks.

5.1 Extracting the S&P 500 Constituents

We initiate the data collection process by extracting the companies that have been listed on the S&P 500 from Compustat. The S&P 500 is an American stock index based on the market capitalization of 500 large companies listed on either the New York Stock Exchange or the NASDAQ. We extract relevant constituents from the S&P 500 because most of these corporations repatriated foreign earnings during the AJCA repatriation tax holiday (Cox, 2017). In the two event studies, we will only analyze the companies that were continuously listed on the S&P 500 throughout Bush's two presidential terms. Hence, from January 20, 2001, through January 20, 2009. This is to be certain that the dataset contains consistent observations. The total number of unique S&P 500 constituents that were listed on the index throughout Bush's two presidential terms was 321. Furthermore, repatriation taxes do not apply for corporations incorporated outside the U.S., so we remove those. In addition to this, we remove financial companies, such as banks and insurance companies, because their balance sheets differ from those of other companies. Thus, the number of relevant constituents that were incorporated in the U.S. under a worldwide taxation system is reduced to 297 corporations.

5.2 Extracting the Permanently Reinvested Earnings

In order to answer the research question it is necessary to have a proxy for foreign cash holdings. In the analysis, we use PRE as a proxy for foreign cash holdings, and combine it with total assets to create the PRE-ratio, which describes foreign cash holdings relative to company size. Alternatively, we considered using retained earnings and income taxes paid to foreign countries as a proxy instead of PRE as these can easily be extracted from Compustat. However, these variables do not indicate anything about companies' foreign cash holdings and we therefore use PRE-data.

In the process of constructing the new ratio, it is necessary to extract information about the relevant constituents' PRE and total assets figures from the fiscal year of 2003. Since 2010, an increasing number of U.S. corporations have begun disclosing their PRE-figures in their 10-K filings (Harford et al., 2016). However, during President Bush's presidential period fewer corporations disclosed this information in their 10-Ks. To obtain the PRE for the relevant constituents we manually extract this information from the 10-Ks. In this extraction process the focus is limited to one constituent at the time. By manually searching through the 10-Ks for words such as "permanently", "reinvested", "indefinitely", "foreign subsidiaries", "unremitted" and "deferred taxes", we manage to extract the PRE for the relevant constituents that disclosed this information (Appendix C3).

During the extraction process of the PRE-figures it becomes evident that several corporations were reluctant to share their PRE. For instance, Pfizer, which repatriated $38 billion during the repatriation tax holiday, did not disclose its PRE-figures in neither 2003 nor 2004. Since not all S&P 500 constituents are represented in our study, sample selection bias could potentially be a problem. However, since our sample consists of all the companies that reported PRE it is likely the most representative sample and therefore we believe the potential issues with sample selection bias are reduced.

5.3 Extracting the Total Assets

As opposed to the manual extraction process of the constituents' PRE, we extract the total assets figures directly from Compustat. All the numbers are reported in millions of dollars and are extracted from the relevant constituents' balance sheets on the same date that the PRE-figures are reported. Thus, after extracting the PRE and total assets, the final number of relevant constituents is reduced to 135. The firms are of different size and operate in different sectors. The extraction process of relevant constituents is displayed in Figure 2 below. According to MacKinlay (1997), an issue may arise if the assumption of normality does not hold when conducting an event study. However, in our study, the assumption of normality should hold as our sample includes 135 different constituents.

We also considered using cash and cash equivalents (CCE) instead of total assets, but our relevant constituents have different reporting standards of CCE. If we had applied CCE in the ratio, it could have generated inaccurate results. We also considered using the constituents' market capitalization as denominator in the PRE-ratio. However, the market capitalization is

constantly changing and the ratio would therefore not be a constant, which would yield misleading results. Thus, PRE divided by total assets is the preferred PRE-ratio, which we apply in the analysis.

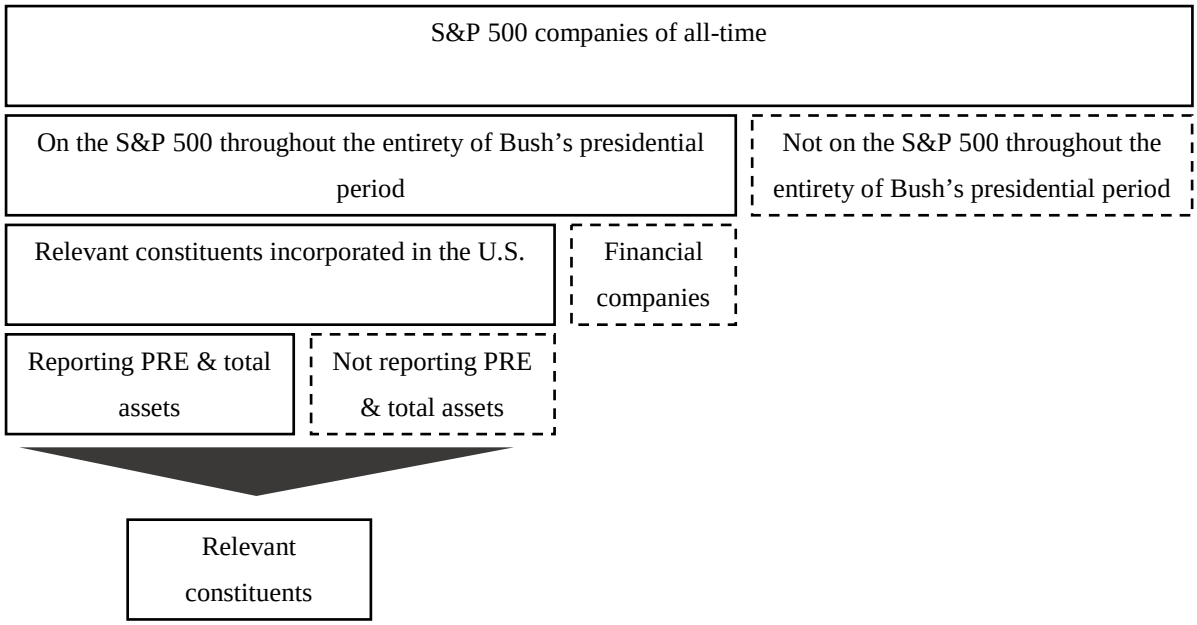


Figure 2 – Finding the Relevant Constituents

5.4 Extracting the Actual Returns

According to MacKinlay (1997), shorter sampling intervals of data yield stronger results in event studies than longer sampling intervals of data. We use daily returns throughout the analysis and use the CRSP database to collect the returns of the relevant constituents. For each constituent, we extract the "Holding Period Return" as the stock return. This is the percentage gain or loss of an investment over time.

An alternative method to compute the daily returns is to use the company stock prices and manually compute the daily returns. However, there is a risk that dividend payments would not have been captured as return in this computation. Thus, we believe that using the Holding Period Return is a more precise measure.

Since the CAPM and the Carhart-model build upon returns in excess of the risk-free rate, we modify the return variable to include the risk-free rate. We extract the risk-free rate data together with the Fama-French-Carhart factors for the Carhart-model.

Table 1 shows a summary of the returns of the companies in the estimation window. The mean of the daily returns is 0.1 percent, whilst there is some spread between the highest and lowest daily return. The highest daily return is a 19 percent gain, whilst the lowest is a 24 percent loss. We also see that the market return varies less than the daily company returns even though the mean, not surprisingly, is approximately the same.

Variable	Obs	Mean	Std.Dev.	Min	Max
Return	24,300	.001	.017	-.24	.19
Market Return	180	.001	.008	-.019	.022

Table 1 - Descriptive Statistics of Company and Market Returns

5.5 Extracting the Market Returns

We choose the S&P 500 return as the benchmark for market return, because it is a well-diversified index, which includes 500 of the leading American companies and captures approximately 80 percent of the available market capitalization (S&P Dow Jones Indices LLC.). Furthermore, all the companies that we analyze in this report were listed on the S&P 500.

We extract the market returns from the CRSP database. The variable is defined as the "Return on the Standard & Poor's Composite Index". It is calculated by dividing the level of the S&P 500 ($SPINDX$) at time τ by the level at time $\tau - 1$, and then subtracting by one. The calculation is shown in the equation below.

$$R_{M,\tau} = \frac{SPINDX_{\tau}}{SPINDX_{\tau-1}} - 1$$

An alternative to using the S&P 500 as a benchmark is to take the average daily returns of the constituents in the sample. However, this method would not have taken into account the market capitalization of the companies. Although, this would not necessarily be a large drawback, using the S&P 500 Index return as benchmark for the market return seems to be the most appropriate method of the two.

6. Data Analysis

In this section of the report, we analyze whether foreign cash holdings, influence companies' cumulative abnormal returns during the two AJCA events. In order to analyze this, we will first define the two events. Then we will calculate the expected returns, abnormal returns and cumulative abnormal returns during the events. Finally, we conclude the data analysis by testing for the effect of foreign cash holdings on the cumulative abnormal returns during the events and interpreting the results with explanations.

6.1 Defining the Events

We will now elaborate on the two events we study. We will analyze the introduction of the AJCA-bill in the U.S. House of Representatives and the enactment of the bill into law.

6.1.1 Event 1 – Introduction of the Repatriation Tax Holiday in the House of Representatives

The first event we will study is the introduction of the repatriation tax holiday on June 4, 2004, by Representative Bill Thomas in the U.S. House of Representatives. The estimation window for the event is limited to 180 trading days before the event window. Hence, from August 26, 2003, to May 12, 2004.

The event window is limited to 15 trading days before the introduction date and 15 trading days after, hence, from May 13, 2004, to June 28, 2004 (Appendix B1). The duration of the event window is both before and after the event in order to avoid any leaks, which could affect the results of the study.

6.1.2 Event 2 – Enactment of the Repatriation Tax Holiday Under the American Jobs Creation Act

The date of the second event, October 22, 2004, is when President Bush enacted the repatriation tax holiday into law under the AJCA section 965. As in the first event, the estimation window of the second event is supposed to be 180 trading days before the beginning of the second event window on October 1, 2004. However, it is important that the estimation window does not overlap with any of the other event windows in the same study (MacKinlay, 1997). If the estimation window for the second event were 180 trading days before the

beginning of the second event it would overlap with the first event window. Thus, we apply the same estimation window for both the first and second event. Hence, from August 26, 2003, to May 12, 2004.

The event window for the second event is 15 trading days before and after October 22, 2004. The event window is thus from October 1, 2004, to November 12, 2004 (Appendix B2).

6.2 Deriving the Alpha, Beta and Factor Loadings Used to Calculate the Expected Returns

We derive the CAPM alpha and beta, and Carhart factor loadings for each constituent in order to generate the expected returns during the events in subsection 6.3. We derive the alphas and betas from the estimation window of the events using the CAPM. Furthermore, we also derive the factor loadings from the estimation window, using the Carhart-model. First, we derive the alphas and betas and then we derive the factor loadings.

6.2.1 Deriving the Alphas and Betas with the CAPM

We will use the CAPM, which we introduced in subsection 4.2.1, to derive the alphas and betas from the estimation window.

$$(R_{i,\tau} - r_{f,\tau}) = \alpha_i + \beta_i(R_{M,\tau} - r_{f,\tau}) + \varepsilon_{i,\tau}$$

α_i is the constant of the CAPM regression above, whilst β_i is the coefficient of the market risk premium. As illustrated in Table 2, 135 different company-specific alphas and betas are generated. We deduct the alpha and beta for each constituent by running the CAPM regression during the estimation window of the two events. As mentioned earlier, we do this to obtain alphas and betas that are unaffected by factors related to the two events. Hence, by regressing 180 trading days back, from May 13, 2004, which represents the start of the first event window, we generate the alphas and betas based on the estimation window data. We will use the expected returns generated from the alphas and betas to calculate the CAPM abnormal returns during the two events in subsection 6.3.1.

Variable	Obs	Mean	Std.Dev.	Min	Max
Alpha	135	0.000	.001	-.003	.003
Beta	135	1.045	.443	.333	2.313

Table 2 - Descriptive Statistics of CAPM Alpha and Beta

6.2.2 Deriving the Factor Loadings with the Carhart Four-Factor Model

We will use the Carhart-model, which we introduced in subsection 4.2.2, to derive the factor loadings from the estimation window.

$$(R_{i,\tau} - r_{f,\tau}) = \alpha_i + \beta_{i,M}(R_{M,\tau} - r_{f,\tau}) + \beta_{i,SMB}(SMB_\tau) + \beta_{i,HML}(HML_\tau) + \beta_{i,UMD}(UMD_\tau) + \varepsilon_{i,\tau}$$

To calculate the expected returns during the two events while using the Carhart-model we need to derive the factor loadings that are unaffected by the two events. These have also been calculated by running a regression from May 13, 2004, and back 180 trading days during the estimation window of the two events. In Table 3, the coefficient for each factor loading is displayed based on the average coefficients of the constituents.

Variable	Obs	Mean	Std.Dev.	Min	Max
Market Risk Premium	135	.939	.279	.335	1.715
SMB	135	-.025	.332	-1.04	.87
HML	135	.155	.82	-1.741	2.694
UMD	135	.158	.798	-1.335	3.136

Table 3 - Descriptive Statistics of the Carhart Factor Loadings

As with the alphas and betas, there are 135 company-specific observations for each of the factor loadings. The average market beta is 0.939, implying that the companies in the sample were less volatile than the market. Furthermore, the *SMB* has on average a negative loading of 0.025, which implies that our sample of constituents marginally consists of big companies on average. The *HML* factor has a positive factor loading of 0.155 on average during the estimation window. This insinuates that our sample of constituents consists of high book-to-market stocks. Finally, the *UMD* factor has a positive loading of 0.158 on average. This indicates that our constituents have been rising in the past. In the following paragraphs, we will also use the factor loadings to calculate the abnormal returns in the two events with the Carhart-model.

6.3 Calculating the Abnormal Returns

Once we have derived the alpha and beta for each company in the estimation window, we use these in the CAPM to calculate expected returns and thus derive the abnormal returns in the event window. Similarly, it is possible to use the factor loadings from the Carhart-model to calculate the abnormal returns in the event windows. First, we will calculate the abnormal returns based on the CAPM estimations of the constituents, and second, based on the factor loadings derived from the Carhart-model.

6.3.1 Calculating the Abnormal Returns With the CAPM

The first step when calculating the abnormal return is to calculate the expected return on a given date in the event window based on the actual return in the market on that date.

$$AR_{i,\tau} = \left(R_{i,\tau} - r_f\right) - \left(\alpha_i + \beta_i\left(R_{M,\tau} - r_{f,\tau}\right)\right)$$

In the equation above the expected returns are seen as the second part of the right-hand side of the equation. The expected returns during the events are calculated for each company by using the generated alphas and betas, in addition to the market risk premium during the event windows in the CAPM. After calculating the expected returns during the dates in the event window, we deduct it from the actual returns of the constituent during the same dates in the event window, to generate the abnormal returns. In the equation above, the actual return of company *i* at time τ less the risk-free rate is displayed as $\left(R_{i,\tau} - r_f\right)$.

6.3.2 Calculating the Abnormal Returns With the Carhart-Model

For the Carhart-model predictions, we use a similar method to calculate the abnormal returns.

$$AR_{i,\tau} = \left(R_{i,\tau} - r_f\right) - \left(\beta_{i,M}\left(R_{M,\tau} - r_{f,\tau}\right) + \beta_{i,SMB}(SMB_\tau) + \beta_{i,HML}(HML_\tau) + \beta_{i,UMD}(UMD_\tau)\right)$$

The factor loadings that we derive from the Carhart-model are used instead of the CAPM alphas and betas to calculate the expected returns. The term used to deduct in the equation above is the expected returns we calculate with the Carhart-model. As in the CAPM, we calculate the expected returns in the Carhart-model by inserting the market risk premium and the Fama-French-Carhart factors. Last, $\left(R_{i,\tau} - r_f\right)$ is the actual return less the risk-free rate of

company i at time τ. To generate the abnormal returns we deduct the expected returns from the actual returns.

6.4 Calculating the Cumulative Abnormal Returns

In this thesis, it is more interesting to look at the cumulative abnormal returns than the abnormal returns. This is because it gives a better indication of how the event affects the company returns than the abnormal returns. When we test for cumulative abnormal returns, all effects related to the events are captured and persist throughout the whole event. If we test for abnormal returns instead, only daily effects would be captured and these effects would not have persisted throughout the whole event. Consequently, the effects of the event would have been more difficult to detect. In addition, when we use a large event window, cumulative abnormal returns will capture the effects of potential leaks before the actual event better than abnormal returns, since it would absorb shocks, which would remain throughout the event. For example, investors might obtain knowledge on the proposal of the repatriation tax holiday at different times around the event, and this is to some degree controlled for.

6.5 Hypothesis Testing

We run ordinary least squares regressions for each event window to test for the effect of foreign cash holdings. By clustering the standard errors on firm basis, we are controlling for potential problems with autocorrelation and heteroskedasticity.

$$CAR_i(\tau_1, \tau_2) = \beta_0 + \beta_1 D_\tau + \beta_2 \left(D_\tau * \frac{PRE_i}{Total\ Assets_i} \right) + \varepsilon_{i,\tau}$$

Furthermore, we create an event dummy, D_τ, for each event window. In the first event, the event dummy, Introduction Dummy, takes on the value zero from May 13, 2004, to June 3, 2004, and the value one from June 4, 2004, the day of the introduction, to June 28, 2004, the end of the first event window. Similarly, for the second event, the event dummy, Enactment Dummy, takes on the value zero before the event from October 1, 2004, to October 21, 2004, and value one from the event date, October 22, 2004, to November 12, 2004, the end of the second event window. The generated event dummies will interact with the previously constructed PRE-ratio. We create the interaction term because the scope of the study is to understand the impact the level of foreign cash holdings have on the constituents' stock returns

on the day of the event and after. To test the effect foreign cash holdings have on the cumulative abnormal returns for each constituent during the two events, we use the cumulative abnormal returns as the dependent variable. This can be seen in the level-level regression above.

To test the effect of foreign cash holdings on cumulative abnormal returns during the two events, we test the significance of β_2.

$$H_0: \beta_2 = 0$$

$$H_A: \beta_2 \neq 0$$

Thus, if we reject the null hypothesis that the interaction term has a β_2 coefficient of zero, we can say that a company's PRE-ratio influenced the obtained cumulative abnormal returns on and after the events. If we cannot reject the null hypothesis, it is likely that the PRE-ratio did not influence the company's cumulative abnormal returns during the event.

6.6 Interpreting the Results

We will present the results from our data analysis in this subsection. Our results show little proof of companies with a higher ratio of PRE outperforming companies with a lower ratio. We will further elaborate on the discovered results separately.

6.6.1 Event 1 – Capital Asset Pricing Model

During the introduction period, when using the CAPM expected returns, we see that the coefficient of the interaction term, Introduction Dummy*PRE-ratio, is negative 0.0809, and significant at the five-percent level (Table 4). This implies that a one-percentage point increase in the PRE-ratio leads to a decrease of 0.08 percentage points in the cumulative abnormal returns after the introduction. Based on the discoveries from this test it seems that the level of cash held abroad affects the companies' cumulative abnormal returns. The higher levels of foreign cash a company has, the lower its cumulative abnormal returns are after the event.

Variables	CAR
Introduction Dummy	0.0144**
	(0.00437)
Introduction Dummy*PRE-ratio	-0.0809*
	(0.0350)
Constant	0.00455*
	(0.00222)
Observations	4,185
R-squared	0.032

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Note: The Introduction Dummy takes value 1 on June 4, 2004, and after. The Introduction Dummy*PRE-ratio is an interaction between the Introduction Dummy and the PRE-ratio (PRE/Total Assets).

Table 4 - Regression Event 1 Using CAPM Expected Returns

6.6.2 Event 1 – Carhart Four-Factor Model

When we use the expected returns derived from the Carhart-model to test our hypothesis we see in Table 5 that the results differ from the ones obtained when using the CAPM expected returns. Even though the coefficient is negative we cannot conclude that it is different from zero as the interaction term is not significant. From this test, we therefore find no evidence that companies with a higher level of foreign cash holdings have higher cumulative abnormal returns during the event.

Variables	CAR
Introduction Dummy	0.0129**
	(0.00399)
Introduction Dummy*PRE-ratio	-0.0377
	(0.0265)
Constant	0.00343
	(0.00211)
Observations	4,185
R-squared	0.019

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Note: The Introduction Dummy takes value 1 on June 4, 2004, and after. The Introduction Dummy*PRE-ratio is an interaction between the Introduction Dummy and the PRE-ratio (PRE/Total Assets).

Table 5 - Regression Event 1 Using Carhart Expected Returns

6.6.3 Event 2 – Capital Asset Pricing Model

When we look at the enactment of the bill with the expected returns derived from the CAPM we see from Table 6 that the coefficient of the interaction term, Enactment Dummy*PRE-ratio, is negative, implying that the higher a companies' level of PRE is, the lower its cumulative abnormal returns will be. However, the coefficient is not significant at a five-percent level and we can therefore not conclude on the direction of the coefficient. Again, we find no evidence that companies with higher levels of foreign cash holdings outperform companies with a lower level.

Variables	**CAR**
Enactment Dummy	0.0175**
	(0.00587)
Enactment Dummy*PRE-ratio	-0.0799
	(0.0419)
Constant	-0.00220
	(0.00330)
Observations	4,185
R-squared	0.015

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Note: The Enactment Dummy takes value 1 on October 22, 2004, and after. The Enactment Dummy*PRE-ratio is an interaction between the Enactment Dummy and the PRE-ratio (PRE/Total Assets).

Table 6 - Regression Event 2 Using CAPM Expected Returns

6.6.4 Event 2 – Carhart Four-Factor Model

If we instead use the Carhart expected returns to calculate cumulative abnormal returns during the second event we see from Table 7 that the interaction term is still not significant. It therefore seems that the amount of PRE that a company holds relative to their size does not affect their obtained cumulative abnormal returns after the enactment of the AJCA. Thus, it does not seem that companies with a higher level of foreign cash holdings outperform companies with a lower level of foreign cash holdings during the repatriation tax holiday.

Variables	CAR
Enactment Dummy	0.0209**
	(0.00628)
Enactment Dummy*PRE-ratio	-0.0564
	(0.0377)
Constant	0.00124
	(0.00335)
Observations	4,185
R-squared	0.016

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Note: The Enactment Dummy takes value 1 on October 22, 2004, and after. The Enactment Dummy*PRE-ratio is an interaction between the Enactment Dummy and the PRE-ratio (PRE/Total Assets).

Table 7 - Regression Event 2 Using Carhart Expected Returns

6.6.5 Summary of Results

Based on the results discussed above we find evidence that companies with higher level of foreign cash holdings were outperformed by their lower level counterparts during the first event, when applying the CAPM. However, in the other analyses, we find no evidence that the level of foreign cash holdings has an effect on the cumulative abnormal returns during the AJCA. We will discuss potential reasons for why we see inconsistent results in the following subsection.

Another interesting observation is that we find significant event dummies as is summarized in Table 8. In our sample, we have companies from the S&P 500 and market return based on the S&P 500. The interpretation of this is essentially that the S&P 500 is outperforming the S&P 500, which implies that we have some sort of sample selection bias, due to our reduced sample of 135 constituents. Thus, there is little value in interpreting this coefficient. However, it is still possible to interpret the interaction term.

Variables	**CAR** (CAPM)	**CAR** (Carhart)	**CAR** (CAPM)	**CAR** (Carhart)
Introduction Dummy	0.0144**	0.0129**		
	(0.00437)	(0.00399)		
Introduction Dummy*PRE-ratio	-0.0809*	-0.0377		
	(0.0350)	(0.0265)		
Enactment Dummy			0.0175**	0.0209**
			(0.00587)	(0.00628)
Enactment Dummy*PRE-ratio			-0.0799	-0.0564
			(0.0419)	(0.0377)
Constant	0.00455*	0.00343	-0.00220	0.00124
	(0.00222)	(0.00211)	(0.00330)	(0.00335)
Observations	4,185	4,185	4,185	4,185
R-squared	0.032	0.019	0.015	0.016

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Note: The Introduction Dummy takes value 1 on June 4, 2004, and after. The Enactment Dummy takes value 1 on October 22, 2004, and after. The Introduction Dummy*PRE-ratio is an interaction between the Introduction Dummy and the PRE-ratio (PRE/Total Assets). The Enactment Dummy*PRE-ratio is an interaction between the Enactment Dummy and the PRE-ratio (PRE/Total Assets).

Table 8 - Summary of Regressions

6.7 Explaining the Results

In this subsection, we will explain potential reasons for why the results contradict our initial hypothesis. We believe that our results could be explained in two ways. First, it could be that the PRE-ratio should have an effect on the cumulative abnormal returns, but that it was not captured in our model for various reasons. Second, it could simply be that the PRE-ratio does not have an effect on the cumulative abnormal returns.

6.7.1 The PRE-ratio Affects the Cumulative Abnormal Returns, but the Effect was Not Captured in Our Model

A potential explanation for our results is that there could have been leaks or rumors in the time before the introduction and enactment of the bill. Therefore, the specific event dates that we have analyzed could be misleading and we risk that the overall effects of the two events are not reflected in our model.

Another potential reason why the PRE-ratio is not influencing the cumulative abnormal returns is that investors are not paying enough attention to the companies' 10-Ks. A study by Cohen et. al (2018) suggests that investors are inattentive to changes in 10-Ks and only react once the information is later revealed through news, events, or earnings announcements. Investors' negligence of changes in 10-Ks could potentially also mean that they are inattentive to PRE, which are in the 10-Ks.

In addition, certain guidelines in the AJCA on how companies had to use the repatriated earnings could represent another potential explanation. This is because the guidelines limited the possibilities of investing the repatriated funds for companies with a high level of foreign cash holdings.

Faulkender & Petersen (2012) find that the companies that repatriated the most during the AJCA were capital-unconstrained firms. It is reasonable to assume that the companies with a high PRE-ratio repatriated relatively more than companies with a low PRE-ratio and are therefore capital-unconstrained. For these companies it would be optimal to either distribute the repatriated funds to shareholders or to bolster the cash reserves. This is because capital-unconstrained companies already have conducted the value creating investments domestically. However, during the AJCA, the U.S. government clearly conveyed that the repatriated earnings had to be used to increase investments domestically. The government also conveyed that it was prohibited to use the repatriated funds for shareholder distributions. As a result, the market could have believed that the high-level companies had to use the funds to conduct investments that would not create any substantial value, even though it would be more optimal to distribute the earnings to shareholders (Appendix A2). This therefore weighs down the effect of having large holdings of foreign cash, and consequently we see that it did not have an effect in explaining the cumulative abnormal returns

6.7.2 The PRE-ratio Does Not Affect the Cumulative Abnormal Returns

An interesting observation in our analysis is that we find conflicting results during the introduction when using CAPM and Carhart expected returns. Using the CAPM we observe that the PRE-ratio affects the cumulative abnormal returns a company generates after the introduction, whilst the Carhart-model attributes the ratio little effect. A possible explanation for this is that the Carhart-model controls for more factors than the CAPM by including three

additional factors, the *SMB* as a proxy for size, the *HML* as a proxy for value and the *UMD* as a proxy for momentum. It is therefore plausible that one of the additional factors in the Carhart-model correlates with the PRE-ratio and therefore captures the effect of the PRE-ratio that we observe in the CAPM. For example, it could be that the PRE-ratio is captured by the *HML* because companies with a high level of PRE could have higher book-values than their counterparts. Another, perhaps more plausible explanation is that it is captured by the *UMD*. It could be that a repatriation tax relief had been discussed for a long time. As a result, companies with high foreign exposure started gaining momentum early on. Based on this, there is a possibility that this potential correlation is not detected when using the CAPM expected returns and the generated results with the CAPM could therefore be misleading. Since, both the introduction and enactment events yield an insignificant relationship between the PRE-ratio and the cumulative abnormal returns when applying the expected returns from the Carhart-model we believe that the results when using the CAPM expected returns could be mischievous.

Finally, it is possible that foreign cash holdings alone do not affect the cumulative abnormal returns during repatriation tax holidays. It could be more accurate to use a combination of the PRE-ratio and a measure of how companies intended to use the repatriated earnings. This brings us back to Baghai's (2012) study of the AJCA, where he looks at company returns during the repatriation tax holiday by separating weakly governed and well-governed firms. A modified variable that combines the PRE-ratio and the governing of firms, or another variable reflecting a company's investment opportunities, could perhaps be a better solution to help explain cumulative abnormal returns during the repatriation tax holiday.

7. Robustness Tests

In this section of the report, we will conduct several robustness tests to see how our results react to changes in assumptions and specifications in our model. We will first reduce the length of the two event windows. Further, we will apply an alternative estimation window for the second event. Lastly, we will remove and separate the PRE-ratio observations that deviate the most from the mean to see how this affects the results.

7.1 Alternative Event Windows

In our first robustness test, we reduce the duration of the event windows to 11 days. Each event window now includes five trading days before the events and five trading days after. We have illustrated the results in Table 9. We still lack a significant interaction term for both the introduction and enactment after applying the new event windows. However, the interaction term results with the 11-day event windows are similar to the results with 31-day event windows, and this bolsters our initial results.

Variables	**CAR** (CAPM)	**CAR** (Carhart)	**CAR** (CAPM)	**CAR** (Carhart)
Introduction Dummy	0.00364	0.00430		
	(0.00323)	(0.00297)		
Introduction Dummy*PRE-ratio	-0.0529	-0.0198		
	(0.0276)	(0.0232)		
Enactment Dummy			0.0161***	0.0154**
			(0.00469)	(0.00462)
Enactment Dummy*PRE-ratio			-0.0679	-0.0539
			(0.0404)	(0.0367)
Constant	0.00954**	0.00701*	0.000356	0.00446
	(0.00325)	(0.00310)	(0.00603)	(0.00591)
Observations	1,485	1,485	1,485	1,485
R-squared	0.015	0.003	0.010	0.009

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Note: The Introduction Dummy takes value 1 on June 4, 2004, and after. The Enactment Dummy takes value 1 on October 22, 2004, and after. The Introduction Dummy*PRE-ratio is an interaction between the Introduction Dummy and the PRE-ratio (PRE/Total Assets). The Enactment Dummy*PRE-ratio is an interaction between the Enactment Dummy and the PRE-ratio (PRE/Total Assets).

Table 9 - Regressions with Alternative Event Windows

7.2 Alternative Estimation Window

In our second robustness test, we use an alternative estimation window. We have displayed the results from applying a new estimation window for the second event in Table 10. The alternative estimation window is 67 trading days, from June 29, 2004, to September 30, 2004. This is the period between the two event windows. 67 trading days represents the longest possible estimation window before the second event window without overlapping with the first event window. We apply an alternative estimation window to test whether we obtain similar results as when using our original estimation window. The results on the left-hand side in Table 10 are the results when applying the alternative estimation window for the second event, while the bold results on the right-hand side represent our original results for the second event. We see that the results do not differ much as the interaction terms are not significant. Since, we obtain similar results, the original estimation window seems to be accurate for the second event.

Variables (original results in bold)	**CAR** (CAPM)	**CAR** (Carhart)	**CAR (CAPM)**	**CAR (Carhart)**
Enactment Dummy	0.0144*	0.0161**	**0.0175****	**0.0209****
	(0.00713)	(0.00573)	**(0.00587)**	**(0.00628)**
Enactment Dummy*PRE-ratio	-0.0249	-0.0569	**-0.0799**	**-0.0564**
	(0.0421)	(0.0348)	**(0.0419)**	**(0.0377)**
Constant	-0.000272	-0.000623	**-0.00220**	**0.00124**
	(0.00354)	(0.00325)	**(0.00330)**	**(0.00335)**
Observations	4,185	4,185	**4,185**	**4,185**
R-squared	0.007	0.012	**0.015**	**0.016**

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Note: The Enactment Dummy takes value 1 on October 22, 2004, and after. The Enactment Dummy*PRE-ratio is an interaction between the Enactment Dummy and the PRE-ratio (PRE/Total Assets).

Table 10 - Regressions with Alternative Estimation Window

7.3 Removing Extreme PRE-ratio observations

We remove the top five and bottom five percent of PRE-ratio observations to test whether the results are driven by the extreme observations in the sample. The main results are illustrated in Table 11 below. Using the CAPM expected returns, the interaction terms are significant for both events. However, this is not the case when using the Carhart expected returns. Since the Carhart predictions could be more accurate than the CAPM predictions, removing the extreme observations does not affect our initial results.

Variable	CAR (CAPM)	CAR (Carhart)	CAR (CAPM)	CAR (Carhart)
Introduction dummy	0.0174***	0.0142**		
	(0.00439)	(0.00444)		
Introduction dummy*PRE-ratio	-0.132***	-0.0599		
	(0.0372)	(0.0349)		
Enactment Dummy			0.0193**	0.0202**
			(0.00657)	(0.00717)
Enactment Dummy*PRE-ratio			-0.123*	-0.0618
			(0.0610)	(0.0625)
Constant	0.00370	0.00259	-0.00302	0.000618
	(0.00231)	(0.00225)	(0.00354)	(0.00359)
Observations	3,751	3,751	3,751	3,751
R-squared	0.048	0.022	0.018	0.013

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

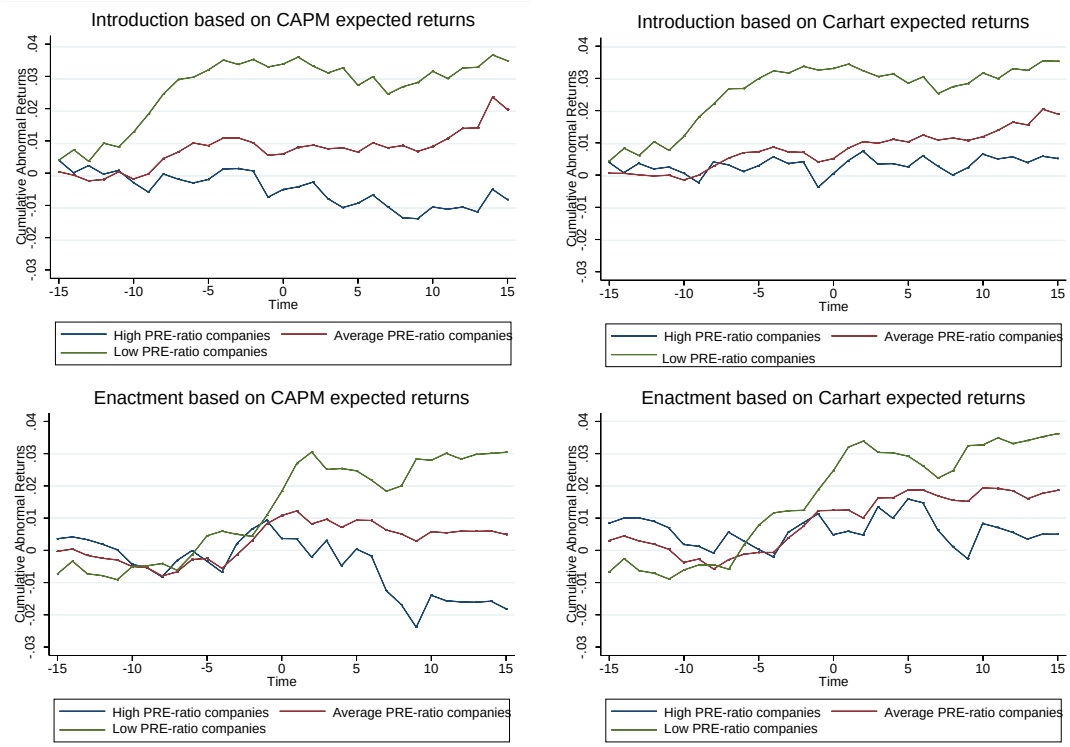
Note: The Introduction Dummy takes value 1 on June 4, 2004, and after. The Enactment Dummy takes value 1 on October 22, 2004, and after. The Introduction Dummy*PRE-ratio is an interaction between the Introduction Dummy and the PRE-ratio (PRE/Total Assets). The Enactment Dummy*PRE-ratio is an interaction between the Enactment Dummy and the PRE-ratio (PRE/Total Assets).

Table 11 - Regressions when Removing Extreme Observations

7.4 Separating Constituents by PRE-ratio

The last robustness test we conduct is to graph the cumulative abnormal returns of the constituents in the event windows. We separate the constituents into three groups based on their level of PRE. The companies with a ratio higher than one standard deviation up from the mean is in one group. Similarly, the companies with a ratio lower than one standard deviation down from the mean is in another group. The last group consists of the companies in between. From the graphs below, it is evident that the companies with a low level of PRE have higher cumulative abnormal returns than their high-level counterparts. However, it seems that much of the difference occurs in the days prior to the introduction and enactment of the bill. This brings us back to one of MacKinlay's (1997) critical event study assumptions regarding event window uncertainty.

Event window uncertainty relates to the previous discussion about potential leaks prior to the events. If there were leaks and the cumulative abnormal returns were already priced in before the events occurred, it might help explain our findings (Figure 3). It is quite evident from the visual analysis below that the difference between the two extreme cases of PRE-levels seem to stabilize after the events occur at time zero.



Note: Each graph shows the cumulative abnormal returns in the 31-day event windows. We have segmented the companies into three groups. The "High PRE-ratio companies" have a PRE-ratio higher than one standard deviation from the mean. The "Low PRE-ratio companies" have a PRE-ratio lower than one standard deviation from the mean. The "Average PRE-ratio companies" are the companies with a PRE-ratio in between.

Figure 3 - Graph of Events with CAR Separated by PRE-ratio

8. Conclusion

In this thesis, we have analyzed the following research question: *How did the level of foreign cash holdings relative to company size affect the company returns during the American Jobs Creation Act of 2004?* We have conducted two event studies, one on the introduction of the AJCA and one on the enactment, to answer the research question.

Based on repatriation and valuation theory, we expected that companies with a higher level of foreign cash holdings relative to size would outperform companies with a lower level of foreign cash holdings. This is because they would obtain a relatively greater tax gain, than their low-level counterparts. We have used PRE as a proxy for foreign cash holdings and investigated how different levels of PRE affected cumulative abnormal returns during the two events.

We find no evidence that the level of foreign cash holdings had an effect on the level of cumulative abnormal returns during the two events. We believe that there are mainly two reasons for these results. First, it could be that different levels of PRE should affect the cumulative abnormal returns, but that this is not captured in our model. Possible explanations for this are leaks and rumors before the events, investors' negligence of 10-Ks and strict guidelines in the AJCA. Second, it could simply be that different levels of PRE do not affect cumulative abnormal returns, as investors potentially were more interested in the companies' investment opportunities than their PRE.

To see how our results react to changes in the assumptions and specifications of our model we conduct several robustness tests. These robustness tests include applying alternative event windows and an alternative estimation window. In addition, we also remove and separate the PRE-ratio observations that deviate the most from the mean. These robustness tests do not affect the interpretation of our results, and we therefore conclude that different levels of foreign cash holdings had no effect on the cumulative abnormal returns during the AJCA.

9. References

Albring , S., Dzuranin, A., & Mills, L. (2005). Tax Savings on Repatriations of Foreign Earnings Under The American Jobs Creation Act of 2004. *Tax Notes*.

American Jobs Creation Act of 2004. (2004, October 22). *Public Law 108-357*. Washington D.C.

Baghai, R. P. (2012). *Corporate Governance and Extraordinary Earnings Repatriations: Evidence from the American Jobs Creation Act.* Stockholm: Stockholm School of Economics.

Berk, J., & DeMarzo, P. (2017). *Corporate Finance.* Essex: Pearson Education Limited.

Blouin, J., & Krull, L. (2009). Bringing It Home: A Study of the Incentives Surrounding the Repatriation of Foreign Earnings Under the American Jobs Creation Act of 2004. *Journal of Accounting Research*, 1027-1059. doi:10.1111/j.1475-679X.2009.00342.x

Carhart, M. M. (1997). On Persistence in Mutual Fund Performance. *The Journal of Finance*, 57-82. doi:10.2307/2329556

Clemons, R., & Kinney, M. R. (2008, August 25). An Analysis of the Tax Holiday for Repatriation under the Jobs Act. *Tax Notes International*, pp. 759-768.

Cox, J. (2017, April 26). *CNBC*. Retrieved from The last time companies got a break on overeas profits, it didn't work out well: https://www.cnbc.com/2017/04/26/what-happened-the-last-time-companies-got-a-break-on-overseas-profits.html

de Leeuw, D. (2016). *U.S. Repatriation Taxes and Corporate Cash Holdings.* Rotterdam.

Dharmapala, D., Foley, C., & Forbes, K. (2011). Whatch What I Do, Not What I Say: The Unintended Consequences of the Homeland Investment Act. *The Journal of Finance*, 753-787. doi:10.1111/j.1540-6261.2011.01651.x

Dittmer, P. (2012, August 10). *A Global Perspective on Territorial Taxation*. Retrieved from Tax Foundation: https://www.taxfoundation.org/global-perspective-territorial-taxation/

Fama, E. F., & French, K. R. (1992). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 3-56. doi:10.1016/0304-405X(93)90023-5

Faulkender, M., & Petersen, M. (2012). Investment and Capital Constraints: Repatriations Under the American Jobs Creation Act. *Oxford University Press*, 3351-3388. doi:10.3386/w15248

Foley, C. F., Hartzell, J. C., Titman, S., & Twite, G. (2006). *Why do firms hold so much cash? A tax-based explanation.* Cambridge: National Bureau of Economic Research. doi:10.3386/w12649

Guay, W., & Harford, J. (2000). The cash-flow permanence and information content of dividend increases versus repurchases. *Journal of Financial Economics*, 385-415. doi:10.1016/S0304-405X(00)00062-3

Harford, J., Wang, C., & Zhang, K. (2016). *Foreign Cash: Taxes, Internal Capital Markets, and Agency Problems.* Oxford: The Review of Financial Studies. doi:10.1093/rfs/hhw109

Koller, T., Goedhart, M., & Wessels, D. (2015). *Valuation* . Hoboken, New Jersey: John Wiley & Sons.

Levin, C., Akaka, D. K., Carper, T. R., Pryor, M. L., Landrieu, M. L., McCaskill, C., . . . Moran, J. (2011). *Repatriating Offshore Funds: 2004 Tax Windfall for Select Multinationals.* Washington D.C.: U.S. Government Printing Office.

MacKinlay, C. A. (1997). Event Studies in Economic and Finance. *Journal of Economic Literature*, 13-39.

Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, 261-297.

Oler, M. S. (2007). Examining Investor Expectations Concerning Tax Savings on the Repatriations of Foreign Cash under the American Jobs Creation Act of 2004. *Journal of the American Taxation Association Conference*, 25-55. doi:10.2308/jata.2007.29.2.25

S&P Dow Jones Indices LLC. (n.d.). *S&P 500*. Retrieved from S&P Dow Jones Indices: https://eu.spindices.com/indices/equity/sp-500

Tax Cuts and Jobs Act of 2017. (2017, December 22). *Public Law 115-97: The Act to Provide for Reconciliation Pursuant to Titles II and V of the Concurrent Resolution on the Budget for Fiscal Year 2018*. Washington D.C. .

Wagner, A. F., Zeckhauser, R. J., & Ziegler, A. (2018). *Unequal Rewards to Firms: Stock Market Responses to the Trump Election and the 2017 Corporate Tax Reform.* American Economic Association Papers and Proceedings.

Wagner, A., Zeckhauser, R., & Ziegler, A. (2017). Company Stock Price Reactions to the 2016 Election Shock: Trump, Taxes and Trade. 428-451. doi:10.3386/w23152

10. Appendix

Appendix A: Theory

Appendix A1 – Repatriation Theory

In the equations below, DIV represents the amount of dividends that potentially are repatriated. The variable t_d is the U.S. tax rate and t_f is the foreign tax rate. Furthermore, r_d is the U.S. rate of return after tax while r_f is the foreign rate of return after tax. The theory relies on two assumptions. The first assumption is that all foreign earnings eventually are repatriated. The second assumption is that the repatriation tax rate remains the same over time (Oler, 2007).

Equation (1) represents what is left of the repatriated dividend after repatriation if the dividend is reinvested in the U.S at the U.S. rate of return (r_d) in n periods.

$$\left(DIV - \frac{DIV}{(1-t_f)}(t_d - t_f)\right) * (1 + r_d)^n = \frac{DIV(1-t_d)}{(1-t_f)}(1 + r_d)^n \quad (1)$$

Similarly, equation (2) represents what is left of the repatriated dividend if it is reinvested abroad at r_f for n periods before it is repatriated to the U.S.

$$\left(DIV - \frac{DIV}{(1-t_f)}(t_d - t_f)\right) * (1 + r_f)^n = \frac{DIV(1-t_d)}{(1-t_f)}(1 + r_f)^n \quad (2)$$

As a result of equation (1) and (2) the decision to reinvest or repatriate foreign earnings depends on whether the foreign after-tax rate of return (r_f) exceeds the U.S. after-tax rate of return (r_d) or not. If r_f exceeds r_d it is optimal to reinvest abroad. On the other hand, if r_d exceeds r_f it is optimal to repatriate the earnings and reinvest domestically. Consequently, the repatriation decision is neither affected by repatriation tax nor the investment horizon since the firm bears the cost of the repatriation tax irrespective of whether it chooses to repatriate now or to reinvest abroad and repatriate later.

The second assumption of the model is violated during repatriation tax holidays and it needs to be modified in order to be applied correctly during repatriation tax holidays. The model is modified by also including how much of the repatriated dividends that will be taxed. See equation (3) below where T represents the dividend amount that is taxed.

$$\left(DIV - \left(T * \frac{DIV}{(1-t_f)}(t_d - t_f)\right)\right) * (1 + r_d)^n \quad (3)$$

By comparing the value of the dividend if reinvested in the U.S. after repatriation during a repatriation tax holiday (3) compared to if reinvested abroad (2) it is evident that if the dividend value after repatriation is greater it is most beneficial to repatriate.

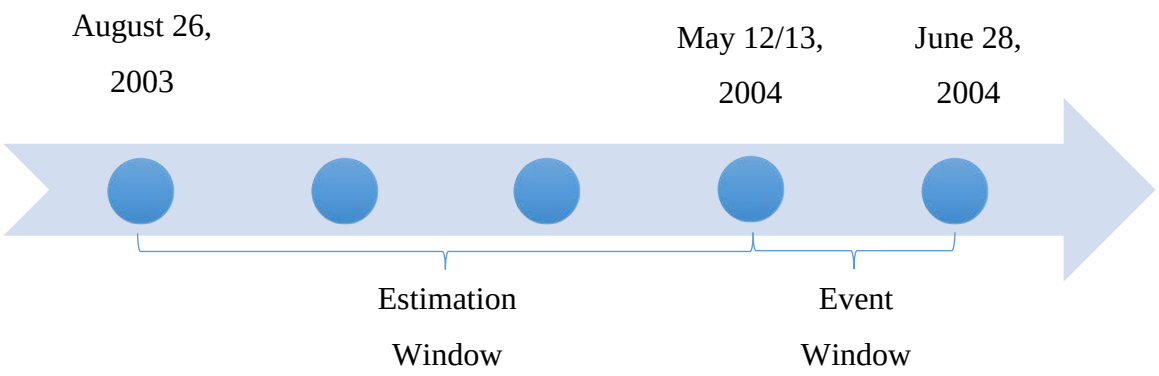
Appendix A2 – Payout Theory

The earnings of a company are typically used in two ways. First, the company could distribute earnings to shareholders by means of paying out dividends or repurchasing shares. Second, the company could retain the earnings by either investing in new projects or increasing the cash reserves of the company. According to Modigliani & Miller (1958), the chosen distribution method should not affect the valuation of the company in a perfect capital market, with no taxes or transaction costs. However, we have both taxes and transaction costs, and thus, there are some valuation differences between paying out the earnings to shareholders and retaining the earnings. Historically, taxes on capital gains are lower than taxes on dividends. Thus, if new positive net present value (NPV) projects are available, shareholder value is maximized when earnings are reinvested into positive-NPV projects. On the other hand, if there are no positive-NPV projects, the company should either save excess cash or distribute it to shareholders (Berk & DeMarzo, 2017).

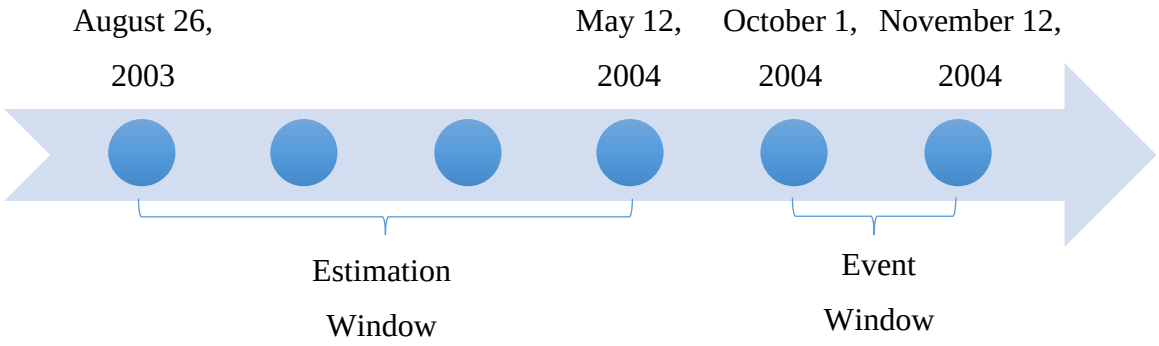
A dividend payout will lead to a decrease in the share price of the company, but shareholders are compensated for the drop in share price because they receive a dividend payment equivalent to the decrease in share price. Thus, the return is unaffected as it considers the dividend payout. On the other hand, a share repurchase will lead to a fall in the market value of equity, since it has been used to repurchase shares. However, shareholders are not worse off than before. This is because there are fewer shares outstanding after the repurchase and hence, the share price remains the same (Berk & DeMarzo, 2017).

Appendix B: Event Windows

Appendix B1 – Introduction of the AJCA



Appendix B2 – Enactment of the AJCA



Appendix C: Repatriation-Specific

Appendix C1 – Extract from Coca-Cola Company's 10-K

"Undistributed earnings of the Company's foreign subsidiaries amounted to approximately $8.2 billion at December 31, 2003. Those earnings are considered to be indefinitely reinvested and, accordingly, no U.S. federal and state income taxes have been provided thereon. Upon distribution of those earnings in the form of dividends or otherwise, the Company would be subject to both U.S. income taxes (subject to an adjustment for foreign tax credits) and withholding taxes payable to the various foreign countries. Determination of the amount of unrecognized deferred U.S. income tax liability is not practicable because of the complexities associated with its hypothetical calculation; however, unrecognized foreign tax credits would be available to reduce a portion of the U.S. liability."

Coca-Cola Company 10-K, December 31, 2003.

Appendix C2 – Top 10 Repatriating Corporations During the AJCA Repatration Tax Holiday

	Corporation	Amount ($1000)
1.	Pfizer	35,491,822
2.	Merck	15,875,762
3.	Hewlett-Packard	14,500,000
4.	Johnson & Johnson	10,668,701
5.	IBM	9,500,000
6.	Schering-Plough	9,399,626
7.	Bristol-Myers	9,000,000
8.	Eli Lilly	8,000,000
9.	DuPont	7,730,209
10.	PepsiCo, Inc.	7,383,801

Source: Levin et al., Page 34

Appendix C3 – Relevant Constituents' PRE and Total Assets

Company Name	PRE	TA	Company Name	PRE	TA
3M CO	6,200	17,600	INTL PAPER CO	3,300	35,525
ADOBE SYSTEMS INC	229	1,555	ITT INC	445	5,938
ADVANCED MICRO DEVICES	430	7,094	KEYCORP	0	84,487
AES CORP	1,500	29,904	KIMBERLY-CLARK CORP	3,700	16,780
AGILENT TECHNOLOGIES INC	1,072	6,297	KLA-TENCOR CORP	44	3,539
ALLEGHENY ENERGY INC	0	10,172	KOHL'S CORP	0	6,698
ALLERGAN INC	712	1,755	LEGGETT & PLATT INC	20	3,890
ALTERA CORP	179	1,488	LEXMARK INTL INC -CL A	843	3,450
AMEREN CORP	0	14,233	LSI CORP	22	3,448
AMGEN INC	956	26,177	MACY'S INC	0	14,550
ANADARKO PETROLEUM CORP	550	20,546	MARATHON OIL CORP	450	19,482
ANALOG DEVICES	1,306	4,093	MARRIOTT INTL INC	298	8,177
APACHE CORP	3,200	12,416	MARSH & MCLENNAN COS	1,700	18,337
APPLE INC	822	6,815	MASCO CORP	739	12,149
APPLIED MATERIALS INC	291	10,312	MATTEL INC	2,700	4,511
AUTODESK INC	144	1,017	MBIA INC	67	30,268
BARD (C.R.) INC	915	1,692	MCDONALD'S CORP	4,200	25,525
BEAM INC	408	7,445	MCKESSON CORP	407	16,240
BEMIS CO INC	205	2,293	MERCK & CO	3,627	40,588
BEST BUY CO INC	0	8,652	MEREDITH CORP	0	1,437
BIG LOTS INC	0	1,785	MICRON TECHNOLOGY INC	473	7,158
BLACK & DECKER CORP	1,400	4,223	MICROSOFT CORP	1,640	79,571
BLOCK H & R INC	90	5,380	MILLIPORE CORP	303	951
BMC SOFTWARE INC	778	3,045	MOLEX INC	480	2,572
BOSTON SCIENTIFIC CORP	1,184	5,699	MOODY'S CORP	16	941
BRISTOL-MYERS SQUIBB CO	5,400	27,471	MOTOROLA SOLUTIONS INC	6,100	32,098
BROWN FORMAN CORP	243	2,624	NABORS INDUSTRIES LTD	453	5,603
CA INC	442	10,679	NATIONAL SEMICONDUCTOR CORP	518	2,280
CAMPBELL SOUP CO	514	6,675	NEW YORK TIMES CO -CL A	0	3,805
CARDINAL HEALTH INC	1,200	21,369	NEWELL BRANDS INC	237	7,481
CBS CORP	2,000	89,849	NEXTERA ENERGY INC	0	26,935
CENTERPOINT ENERGY INC	0	21,377	NIKE INC	706	7,892
CHEVRON CORP	10,540	81,470	NORDSTROM INC	0	4,569
CLOROX CO/DE	168	3,652	NORFOLK SOUTHERN CORP	0	20,596
CMS ENERGY CORP	106	13,838	NORTHROP GRUMMAN CORP	80	33,009
COCA-COLA CO	8,200	27,342	OFFICE DEPOT INC	1,046	6,145
COLGATE-PALMOLIVE CO	1,300	7,479	ORACLE CORP	4,800	12,763
CONOCOPHILLIPS	2,046	82,455	PACCAR INC	2,049	9,940
CONSOLIDATED EDISON INC	0	20,966	PACTIV CORP	128	3,706
CONVERGYS CORP	56	1,810	PALL CORP	992	2,140
COOPER INDUSTRIES PLC	110	5,341	PEPSICO INC	8,800	25,327
CORNING INC	1,200	10,752	PERKINELMER INC	426	2,608
COSTCO WHOLESALE CORP	622	13,192	PINNACLE WEST CAPITAL CORP	0	9,536
CSX CORP	387	21,760	PITNEY BOWES INC	361	8,891
DANAHER CORP	820	6,890	PPG INDUSTRIES INC	1,259	8,424
DEERE & CO	504	26,258	PPL CORP	530	17,123
DOMINION ENERGY INC	116	44,186	PROGRESSIVE CORP-OHIO	0	16,282
DOVER CORP	223	5,134	PULTEGROUP INC	0	8,063
DTE ENERGY CO	0	20,753	QUALCOMM INC	877	8,822
DU PONT (E I) DE NEMOURS	13,474	37,039	ROBERT HALF INTL INC	26	980

EASTMAN CHEMICAL CO	414	6,230	ROCKWELL AUTOMATION	200	3,986
EL PASO CORP	835	37,084	ROHM AND HAAS CO	0	9,445
EMC CORP/MA	3,189	14,093	RYDER SYSTEM INC	226	5,279
ENTERGY CORP	10	28,554	SCHLUMBERGER LTD	2,300	20,041
EXXON MOBIL CORP	22,000	174,278	SEMPRA ENERGY	360	22,009
FIRSTENERGY CORP	0	32,910	SNAP-ON INC	215	2,139
FLUOR CORP	14	3,449	STANLEY BLACK & DECKER INC	214	2,424
FORD MOTOR CO	860	304,594	STAPLES INC	216	6,503
FOREST LABORATORIES -CL A	1,562	3,863	STRYKER CORP	989	3,159
GENERAL MILLS INC	444	18,227	TERADYNE INC	19	1,785
GOODRICH CORP	308	5,890	THERMO FISHER SCIENTIFIC INC	617	3,389
GOODYEAR TIRE & RUBBER CO	947	15,006	TIME WARNER INC	1,100	121,783
GRAINGER (W W) INC	0	2,625	VERIZON COMMUNICATIONS INC	3,400	165,968
HASBRO INC	688	3,163	VIAVI SOLUTIONS INC	12	2,138
HP INC	14,400	74,708	WASTE MANAGEMENT INC	300	20,656
INTEL CORP	7,000	47,143	WHIRLPOOL CORP	509	7,361
INTERPUBLIC GROUP OF COS	750	12,235	XEROX CORP	343	24,591
INTL FLAVORS & FRAGRANCES	635	2,307			

Note: The PRE and total assets (TA) are given in millions of dollars. PRE is hand collected from the companies' 10-Ks. Total assets are extracted from Compustat.