# The Debt Ceiling: Economics and Politics

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#### I. INTRODUCTION

Since 1917 the U.S. has had an overall limit on the amount of federal debt allowed outstanding at one time. To adjust for rising debt levels over time, Congress has repeatedly raised the debt limit in order to allow additional borrowing.<sup>1</sup> Over the past 40 years, these votes have become especially charged as the federal debt and deficit spending is usually at the forefront of political debates. Part 1 of this paper will provide an overview of the debt ceiling and the process through which Congress raises the debt limit.

Part 2 uses a statistical model of historical debt ceiling votes to examine the factors influencing the magnitude of changes in the debt ceiling legislated by Congress. The model includes economic factors, such as the level of interest rates, and political factors, such as the political makeup of the Presidency, House of Representatives, and Senate, to explain changes in the debt ceiling. The results show that the effects of economic factors far outweigh political considerations except when there are substantial negotiations between the president and Congress to alter the budget process as part of the debt ceiling vote.

Many arguments have been put forth both in support of, and against, the debt ceiling statute.<sup>2</sup> Supporters argue that the debt ceiling brings attention to the country's fiscal position and forces Congress and the President to take visible actions to monitor spending while allowing further borrowing. Those in opposition argue that the debt ceiling does little to alter spending policies, and has a minimal effect on the amount of federal debt. The uncertainty and administrative burden when the Treasury must take extraordinary actions has potential negative

<sup>&</sup>lt;sup>1</sup> For a discussion of the treatment of debt in the United States from WWI through the Great Depression, see KENNETH D. GARBADE, BIRTH OF A MARKET: THE U.S. TREASURY SECURITIES MARKET FROM THE GREAT WAR TO THE GREAT DEPRESSION (MIT Press, 2012).

<sup>&</sup>lt;sup>2</sup> For general information regarding arguments both for and against the debt ceiling, see D. ANDREW AUSTIN & MINDY R. LEVIT, CONG. RESEARCH SERV., 7-5700, THE DEBT LIMIT: HISTORY AND RECENT INCREASES 3-5 (Jan. 20, 2012).

effects. One additional critique of the debt ceiling is the idea that it can be held "hostage" or used as a "legislative pawn" by the minority legislative party in order to pass other laws or extract additional budget cuts. <sup>3</sup> Part 3 of this paper will conclude with two short case studies to highlight some of the specific impacts of politics during past debt crises.

#### II. OVERVIEW OF THE STATUTORY DEBT CEILING

### **II.1** The Debt Ceiling and Federal Debt Generally

Unlike almost all other democratic countries, the U.S. places a cap on the total amount of debt allowed outstanding at one time.<sup>4</sup> This is known as the "statutory debt limit" or "debt ceiling." Once the amount of outstanding federal debt reaches the debt ceiling, the Treasury can no longer issue additional debt to cover cash shortfalls needed to fund government operations and meet legal obligations. For this reason, between 1950 and 2007, Congress acted 72 times to alter the debt ceiling, 63 of those times raising the limit.<sup>5</sup> The original debt limit in 1917 was set at \$11.5 billion<sup>6</sup> and it currently stands at \$16.394 trillion.<sup>7</sup>

Starting with the Revolutionary War, the federal debt was closely related to war spending. While debt would be issued to cover war expenditures, it was typically paid down following the conclusion of a war. Initially, Congress would approve individual issuances of bonds for a specific purpose and provide the appropriate interest rate and term of the bond.<sup>8</sup> However, during World War I, expenditures grew to unprecedented levels. In order to allow for

<sup>&</sup>lt;sup>3</sup> See Anita S. Krishnakumar, *In Defense of the Debt Limit Statute*, 42 *HARV. J. ON LEGIS.* 135 (2005) for a thorough support of the debt ceiling and data debunking the argument that the debt limit is successfully used as a "legislative pawn."

<sup>&</sup>lt;sup>4</sup> Denmark is the only other democratic country with a debt ceiling. See *Only One Democratic Country, Besides America, Has a Debt Ceiling*, July 19, 2011, http://abcnews.go.com/blogs/politics/2011/07/only-one-democratic-country-besides-america-has-a-debt-ceiling/ (citing a Moody's report by Steven Hess).

<sup>&</sup>lt;sup>5</sup> The 72 actions affecting the debt ceiling were calculated using the criteria set out in Appendix A.1.

<sup>&</sup>lt;sup>6</sup> Second Liberty Bond Act of 1917, Pub. L. No. 65-43, 40 Stat. 288.

<sup>&</sup>lt;sup>7</sup> U.S. Office of Management and Budget, FY2013 Budget of the U.S. Government: Historical Tables, Table 7-3.

<sup>&</sup>lt;sup>8</sup> BIRTH OF A MARKET: THE U.S. TREASURY SECURITIES MARKET FROM THE GREAT WAR TO THE GREAT DEPRESSION at 313-315.

more efficiency in federal borrowing, Congress passed the Second Liberty Bond Act, allowing Treasury the freedom to issue debt up to a set limit.<sup>9</sup> While Congress was still heavily involved in the process, and still held control over the interest rates of the debt issued, Treasury now had more freedom to determine the amount, terms, and conditions of federal debt to be issued. This was the basis for the modern statutory debt limit.

Almost all outstanding federal debt is subject to the statutory debt limit.<sup>10</sup> Two types of debt make up the debt subject to this statutory limit: debt held by the public and debt held by government agencies. Debt held by the public includes borrowing from state and local governments, private investors, and foreign governments.<sup>11</sup> Intragovernmental debt includes liabilities between different parts of the federal government, usually held in trust funds like the Social Security Trust Fund.<sup>12</sup> The total of each of these two types of debt makes up the total debt subject to the debt ceiling.

If outstanding debt reaches the debt limit, the government needs to rely on the current cash balance and incoming revenues to cover obligations.<sup>13</sup> The process of raising the debt ceiling has at times become extremely contentious and debt ceiling raises could not be enacted before the outstanding federal debt ran up against the statutory limit. In these circumstances, the Treasury Department has some special accounting measures that it can utilize to keep the government running, meet the country's obligations, and buy time until Congress can raise the

<sup>&</sup>lt;sup>9</sup> Id. at 313-314. See also Pub. L. No. 65-43, 40 Stat. 288.

<sup>&</sup>lt;sup>10</sup> A small percentage of federal debt outstanding is not subject to the debt limit. For example, on February 29, 2012, the Total Public Debt Outstanding was \$15,488.891 billion while the Total Public Debt Subject to Limit was \$15,446.261 billion, meaning approximately 0.28% of the Public Debt Outstanding was not subject to the limit. To find the Debt to the Penny on a given date, visit http://www.treasurydirect.gov/NP/BPDLogin?application=np; to find the debt subject to the limit on a given date, see Table III-C of the Daily Treasury Statement, available at http://fms.treas.gov/dts/index.html.

<sup>&</sup>lt;sup>11</sup> D. ANDREW AUSTIN, CONG. RESEARCH SERV., R41815, OVERVIEW OF THE FEDERAL DEBT 1 (May 11, 2011). <sup>12</sup> Id. at 5

<sup>&</sup>lt;sup>13</sup> MINDY R. LEVIT, CONG. RESEARCH SERV., R41633, REACHING THE DEBT LIMIT: BACKGROUND AND POTENTIAL EFFECTS ON GOVERNMENT OPERATIONS 7 (July 27, 2011).

debt limit. These measures include postponing debt auctions, suspending new issuances of State and Local Government Series Securities, exchanging debt subject to the limit for Federal Financing Bank debt which is not subject to the limit,<sup>14</sup> and suspending investments in certain government trust funds.<sup>15</sup> In 1986, Congress gave explicit legislative approval to the Treasury Department to use certain measures when it determines that a "debt issuance suspension period" is needed to prevent the federal debt from exceeding the limit.<sup>16</sup> While these measures can extend the time by which Congress must raise the debt limit, some of the negative effects include administrative burden, higher borrowing costs, and uncertainty over Treasury cash management.<sup>17</sup>

Because the debt ceiling has always been raised when necessary, it is uncertain what actions the government would take if revenues and cash on hand could not cover all government obligations and Treasury exhausted all extraordinary measures.<sup>18</sup> Figure 1 shows the level of the debt ceiling between 1950 and 2007 in nominal and real dollars. The level of the debt ceiling has consistently risen, although the increases have drastically increased in the past 30 years.

<sup>&</sup>lt;sup>14</sup> Federal Financing Bank debt is an example of debt that is generally not subject to the debt limit. It is, however, subject to its own limit of \$15 billion. OVERVIEW OF THE FEDERAL DEBT at 5.

<sup>&</sup>lt;sup>15</sup> U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-11-203, DELAYS CREATE DEBT MANAGEMENT CHALLENGES AND INCREASE UNCERTAINTY IN THE TREASURY MARKET 7 (Feb. 2011).

<sup>&</sup>lt;sup>16</sup> Omnibus Budget Reconciliation Act of 1986, Pub. L. No. 99-509, 100 Stat. 1874.

<sup>&</sup>lt;sup>17</sup> DELAYS CREATE DEBT MANAGEMENT CHALLENGES AND INCREASE UNCERTAINTY IN THE TREASURY MARKET at 10-15.

<sup>&</sup>lt;sup>18</sup> For more information on the possible actions that the government could take to avoid default see REACHING THE DEBT LIMIT: BACKGROUND AND POTENTIAL EFFECTS ON GOVERNMENT OPERATIONS.





Source: U.S. Office of Management and Budget, FY2013 Budget of the U.S. Government: Historical Tables, Table 7-3; U.S. Dep't of Labor, Bureau of Labor Statistics, http://www.bls.gov/cpi/tables.htm

#### **II.2 Process to Raise the Debt Ceiling**

Because the debt limit is currently codified in Section 3101(b) of Title 31 of the United States Code,<sup>19</sup> adjustments to the debt limit are enacted as amendments to the statute by either replacing the debt limit amount, or adding a temporary limit with an expiration date.<sup>20</sup> The Congressional Budget Act of 1974 requires the House and Senate to adopt a concurrent resolution on the budget before considering debt limit legislation.<sup>21</sup> Even though the budget resolution recommends the appropriate level of the debt limit based on the projected budget surplus or deficit, Congress must enact separate legislation to actually raise the debt limit

<sup>&</sup>lt;sup>19</sup> 31 U.S.C. § 3101(b) (2012).

<sup>&</sup>lt;sup>20</sup> BILL HENIFF JR., CONG. RESEARCH SERV., RS21519, LEGISLATIVE PROCEDURES FOR ADJUSTING THE DEBT LIMIT:

A BRIEF OVERVIEW 1 (Mar. 18, 2010). <sup>21</sup> Id. at 1.

because a budget resolution does not become law.<sup>22</sup> There are three different legislative procedures in which Congress can adjust the amount of the debt limit.<sup>23</sup>

<u>Regular Legislative Procedures</u>: The House Ways and Means Committee and the Senate Finance Committee may originate legislation adjusting the debt limit at any time. The measures may be stand-alone, or they may be passed in conjunction with other legislation. The bill, similar to any other legislation, must pass each house of Congress with a majority vote and must then be signed by the President.<sup>24</sup>

<u>Gephardt Rule Procedures</u>: Debt limit legislation may also be initiated under House Rule XXVIII, commonly known as the Gephardt Rule. The Gephardt Rule was enacted in 1979 as an amendment to a temporary debt limit increase in response to the repeated, and politically contentious, votes to raise the debt ceiling. The purpose of the rule was to place consideration of the debt limit alongside the overall budget policies, while reducing the amount of time spent and number of votes in the House on the issue of raising the limit.<sup>25</sup> When a budget resolution is adopted, the Gephardt rule requires that the House clerk automatically transmit to the Senate a joint resolution changing the debt limit by the amount recommended in the budget resolution.<sup>26</sup> The resolution is deemed to have passed the House by the same vote as the vote on the budget resolution.<sup>27</sup> The Senate does not have a similar procedure, so it must consider the House joint resolution under the regular legislative process.

From the time the rule was established in 1980 through March 2010, the House originated 20 joint resolutions under this procedure, the Senate passed 16 of these joint

<sup>&</sup>lt;sup>22</sup> ALLEN SCHICK, THE FEDERAL BUDGET: POLITICS, POLICY, PROCESS 18-19 (Brookings Institution Press, 3d ed. 2007).

<sup>&</sup>lt;sup>23</sup> LEGISLATIVE PROCEDURES FOR ADJUSTING THE DEBT LIMIT at 1.

<sup>&</sup>lt;sup>24</sup> Id. at 2.

<sup>&</sup>lt;sup>25</sup> BILL HENIFF JR., CONG. RESEARCH SERV., RL31913, DEVELOPING DEBT-LIMIT LEGISLATION: THE HOUSE'S

<sup>&</sup>quot;GEPHARDT RULE" 1 (Mar. 18, 2010)

<sup>&</sup>lt;sup>26</sup> Id. at 3.

<sup>&</sup>lt;sup>27</sup> Id.

resolutions, and 15 were enacted into law.<sup>28</sup> In 14 years during that period (1988, 1990-1991, 1994-2002, 2004, and 2006), the rule did not apply or was not used due to suspension or repeal, or a budget resolution was not finally agreed to.<sup>29</sup>

<u>Budget Reconciliation Process</u>: The reconciliation process is an optional procedure, and its main purpose is to enhance Congress's ability to change current law affecting revenue, mandatory spending, and debt limit levels to conform with the budget resolution.<sup>30</sup> Reconciliation legislation is subject to expedited consideration in both chambers, and in the Senate in particular, debate is limited, amendments must be germane, and extraneous matter is not allowed.<sup>31</sup> While reconciliation is usually used to adjust revenue and spending levels, the debt limit was changed under reconciliation procedures as part of the Budget Acts of 1986, 1990, 1993, and 1997.<sup>32</sup>

#### III. DATA AND ANALYSIS

#### **III.1** Overview and Description of Debt Ceiling Changes

This study examines the factors affecting the magnitude of Congressional changes to the debt ceiling using a multivariate regression analysis. The time period analyzed is 1950 through 2007. This period avoids the effects of WWII spending as well as the impact of the 2008 World Financial Crisis. The dependent variable is the magnitude of the debt ceiling change in 2007 dollars. Putting everything in 2007 dollars adjusts the debt ceiling for inflation.

The data are based on votes by Congress on the debt ceiling, but eliminate temporary raises of 30 days or less, temporary date extensions of 30 days or less, and other votes meeting

<sup>&</sup>lt;sup>28</sup> LEGISLATIVE PROCEDURES FOR ADJUSTING THE DEBT LIMIT at 3.

<sup>&</sup>lt;sup>29</sup> Id.

<sup>&</sup>lt;sup>30</sup> Id.

<sup>&</sup>lt;sup>31</sup> Schick at 142.

<sup>&</sup>lt;sup>32</sup> LEGISLATIVE PROCEDURES FOR ADJUSTING THE DEBT LIMIT at 4.

specific criteria. Appendix A.1 provides a full explanation of data selection. The outcome of the process results in a dataset of 72 Congressional votes affecting the debt ceiling. During the 58 years in this time period, at least one debt limit change occurred in 43 of the years. As can be seen in Figure 2, more than one debt limit change occurred in twenty years.



Figure 2: Number of Debt Ceiling Actions per Year

In 2007 dollars, the minimum debt limit change during this period was a decrease of \$22.87 billion, and the maximum change was \$1,507 billion.<sup>33</sup> The average debt limit change was \$210.76 billion, however, as the distribution of dollar changes in Figure 3 shows, the large range and high standard deviation skews this number. The median debt limit change was \$93.79 billion.

Source: U.S. Office of Management and Budget, FY2013 Budget of the U.S. Government: Historical Tables, Table 7-3; See Appendix A.1 for data selection criteria

<sup>&</sup>lt;sup>33</sup> In nominal dollars, the minimum single debt ceiling change was -\$3 billion (in 1956, 1957, and 1962), and the maximum change was \$984 billion (in 2003).



Figure 3: Distribution of Debt Ceiling Change Amounts (1950-2007)

#### **III.2** The Model

The main independent variables influencing the magnitude of the debt ceiling change fall into two broad categories – economic factors and political factors. A key hypothesis to be tested is whether political control of both chambers of Congress and the Presidency influences the amount that the debt ceiling is raised. Since Congress does not like to vote for a debt ceiling increase, we might expect a larger increase to avoid repeated votes if the same party controls the White House and Congress. To determine the potential impact of economic and political factors on debt ceiling legislation, I estimate an equation of the following form:



The definitions and expected signs of the variables are as follows:

- $\triangle DC$  (dependent variable):
  - The magnitude of the debt ceiling change in billions of 2007 dollars.<sup>34</sup>
- $INTRATE_{-1}$ :
  - The average interest rate, in percentage points, on the 10 Year U.S. Treasury bond for the month prior to the occurrence of the debt ceiling vote.
  - The expected sign is negative because higher interest rates result in a higher expense in issuing debt, and typically signal a lower willingness to issue additional debt.
- RECESSION:
  - A dummy variable equal to 1 if the debt ceiling vote occurs during a recession, and equal to 0 otherwise.
  - The expected sign is positive because a recession leads to lower tax revenues, higher mandatory government expenditures, and potential stimulus spending.

<sup>&</sup>lt;sup>34</sup> All dollar amounts were adjusted to 2007 dollars by multiplying the nominal dollar amount by the ratio of the 2007 CPI to the applicable year's CPI. CPI data used can be found at http://www.bls.gov/cpi/tables.htm.

- $\triangle DEBT_{-1}$ :
  - The magnitude, in billions of 2007 dollars, that the outstanding federal debt subject to the statutory limit changed in the fiscal year prior to the year that the debt ceiling vote occurred.
  - The expected sign is positive because greater upward pressure on the outstanding debt will result in the need to raise the debt ceiling by a greater amount.
- *POLCONTROL*:
  - A dummy variable equal to 1 if at the time of the vote, the House, Senate, and Presidency were all controlled by the same political party, and is zero otherwise.
  - The expected sign is positive because common control will lead to less negotiation and a desire to avoid numerous future debt ceiling votes.
- EY:
  - A dummy variable equal to 1 if the debt ceiling vote occurred during a presidential election year and is zero otherwise.<sup>35</sup>
  - The expected sign is negative due to the fact that each party will be less willing to raise the debt ceiling when it might have negative political implications in the upcoming presidential election.
- EVENT:
  - A dummy variable equal to 1 if the debt ceiling vote occurred in conjunction with a statutory change to the budget process related to deficit reduction, and is zero otherwise. This results in a value equal to 1 for debt ceiling votes that occurred in conjunction with the Balanced Budget and Emergency Deficit Control (Gramm-

 $<sup>^{35}</sup>$  Two debt ceiling votes occurred during Election Years but after the election took place. These two votes have a value equal to 0 for EY: 12/19/1980 and 11/19/2004.

Rudman-Hollings) Act of 1985; the Balanced Budget and Emergency Deficit Control Reaffirmation (Gramm-Rudman-Hollings II) Act of 1987; the Omnibus Budget Reconciliation Act of 1990; the Omnibus Budget Reconciliation Act of 1993; and the Balanced Budget Act of 1997.<sup>36</sup>

The expected sign of this variable is positive because these events usually involve large scale budget negotiations resulting in the need for greater debt to initially cover new programs. In addition, Congress and the President are more willing to raise the debt ceiling by a greater amount because they think that the new budget process will keep debt under control.

#### III.3 **Regression Results**

The regression results for equation (1) can be found in Table 1.<sup>37</sup> The estimated coefficients show that the impact of economic variables far outweighs the impact of political variables except in cases when debt ceiling raises are enacted in conjunction with statutory changes to the budget process. All three economic variables were statistically significant and had the expected signs. All of the political variables had the expected sign, however, only EVENT was statistically significant.

<sup>&</sup>lt;sup>36</sup> For a list of laws related to the congressional budget process through 2008, *see* Committee on the Budget of the U.S. House Of Representatives, Compilation of Laws and Rules Relating to the Congressional Budget Process, as Amended Through November 30, 2008 (Comm. Print 2008) at iii-v. For a list of all debt ceiling bills that were enacted in conjunction with other bills, see Justin Murray, Cong. Research Serv., R41814, Votes on Measures to Adjust the Statutory Debt Limit, 1978 to Present (Feb. 1, 2012). The intersection of these two sources results in the inclusions of the following events in the data: Balanced Budget and Emergency Deficit Control (Gramm-Rudman-Hollings) Act of 1985, Pub. L. 99-177; Balanced Budget and Emergency Deficit Control Reaffirmation (Gramm-Rudman-Hollings II) Act of 1987, Pub. L. 100-119; Omnibus Budget Reconciliation Act of 1990, Pub. L. 101-508; Omnibus Budget Reconciliation Act of 1993, Pub. L. 103-66; Balanced Budget Act of 1997, Pub. L. 105-33.

<sup>&</sup>lt;sup>37</sup> See Appendix A.4 for the complete output of the regression program.

| Table 1: Summary | Regression | Resul | lts |
|------------------|------------|-------|-----|
|------------------|------------|-------|-----|

|                   | Coefficients | Standard Error | t Stat | P-value |
|-------------------|--------------|----------------|--------|---------|
| Intercept         | 97.536       | 74.132         | 1.316  | 0.193   |
| INTRATE-1         | -24.499      | 9.374          | -2.613 | 0.011   |
| RECESSION         | 149.683      | 70.025         | 2.138  | 0.036   |
| ∆DEBT-1           | 0.977        | 0.145          | 6.745  | 0.000   |
| POLCONTROL        | 23.525       | 55.005         | 0.428  | 0.670   |
| EY                | -10.659      | 61.086         | -0.174 | 0.862   |
| EVENT             | 448.821      | 99.376         | 4.516  | 0.000   |
|                   |              |                |        |         |
| R Square          | 0.601        |                |        |         |
| Adjusted R Square | 0.564        |                |        |         |

#### Note: Gray cells are statistically significant with a t-Stat greater than 2.

I also used alternative specifications of some of the variables to determine whether the precise definitions altered the results. For example, an average of the previous three months' interest rates was used instead of the previous month only. The previous year budget deficit/surplus was used instead of the change in outstanding debt as a proxy for upward pressure on outstanding debt. Neither of these changes altered the results. For political factors, I tried common party control between the House and Senate regardless of the political party of the President, but this did not yield statistically significant results. I also used House election years instead of Presidential election years but this did not yield a statistically significant result either.

#### **III.4 Implications**

The results show a strong statistically significant relationship between the magnitude of the change in the debt ceiling and each of the economic factors. The negative coefficient of INTRATE<sub>-1</sub> suggests that higher interest rates leading up to a debt ceiling raise will result in a lower magnitude raise of approximately -\$24.5 billion per interest rate percentage point. The positive coefficient of RECESSION suggests that the debt ceiling will be raised by a greater magnitude during a recession than during an expansionary period – an effect of approximately

\$149.7 billion. The positive coefficient of  $\Delta DEBT_{-1}$  suggests that the greater the increase in federal debt outstanding during the fiscal year prior to a debt ceiling raise, the greater the magnitude of the debt ceiling raise – an effect of approximately \$1.0 billion for every \$1.0 billion increase in debt outstanding. This shows that during the time period analyzed, economic factors played a significant role in the size of debt ceiling increases.

The only systematic political factor influencing the magnitude of the debt ceiling raise is EVENT, the debt ceiling increases that occurred in conjunction with legislated changes in the statutory budget process. The impact of EVENT is quite powerful. The estimated coefficient of EVENT implies that, on average, when the debt ceiling is raised in conjunction with a statutory change to the budget process, the debt ceiling will be raised by approximately \$448.8 billion, everything else held constant. The Gramm-Rudman-Hollings Acts of 1985 and 1987, the Omnibus Budget Reconciliation Acts of 1990 and 1993, and the Balanced Budget Act of 1997 fall into this category.<sup>38</sup>

### IV. CASE STUDIES

The regression model suggests that some political events, like budget negotiations to alter the statutory budget process, have an impact on the magnitude of the debt limit increase, even though more general political effects, like election year votes, have no systematic impact. This section focuses on two historical debt crises to examine more specific ways that political conflict can affect votes on the debt ceiling.

<sup>&</sup>lt;sup>38</sup> See supra Note 36.

### Case Study I: 1985 Gramm-Rudman-Hollings Act

In 1981, President Reagan took office committed to three basic policy goals: 1) defense buildup, 2) reduction in taxes, and 3) cuts in domestic program spending.<sup>39</sup> The economic growth stimulated by the tax cuts along with the reduced domestic spending was expected to cover the increased defense spending and lost tax revenue.<sup>40</sup> While defense spending accelerated and dramatic tax cuts were passed, a lack of consensus among Congress prevented the cut in domestic spending that Reagan had expected.<sup>41</sup> In 1985, the approximate \$200 billion annual deficit was recognized as a problem, but the Reagan administration's views that defense buildup must continue and tax hikes were off the table conflicted with the view of House Democrats that additional cuts in domestic spending were not acceptable.<sup>42</sup>

Through the summer of 1985, various proposals were put forth to rein in the deficit, but disagreements between the President and Congress about how this should be done (even between the Senate Republicans and the President), prevented a deal from being reached.<sup>43</sup> In September 1985, a bipartisan group of senators decided to use a vote to increase the debt ceiling as a vehicle to pass what became known as the Gramm-Rudman-Hollings (GRH) Act.<sup>44</sup> The purpose of the Act was to eliminate the federal deficit in five years by specifying predetermined deficit maximums and implementing automatic across-the-board cuts if targets were not met.

Based on the contentious nature of the bill, debate dragged on despite the threat of reaching the debt limit. Throughout September and October of 1985, Treasury could not fully invest receipts of various trust funds without exceeding the limit, delayed normal auctions of

<sup>&</sup>lt;sup>39</sup> Harry S. Havens, *Gramm-Rudman-Hollings: Origins and Implementation*, *PUB. BUDGETING & FIN.* 6-7 (Autumn 1986).

<sup>&</sup>lt;sup>40</sup> Id. at 7.

<sup>&</sup>lt;sup>41</sup> Id. at 7.

 $<sup>^{42}</sup>$  Id. at 7.

<sup>&</sup>lt;sup>43</sup> Id. at 9.

<sup>&</sup>lt;sup>44</sup> Id. at 9.

federal securities, and was forced to exchange \$5 billion of securities subject to the debt limit with \$5 billion of Federal Financing Bank securities in order to raise cash to pay immediate obligations.<sup>45</sup>

When November arrived, and still no resolution had occurred, Treasury began to disinvest certain holdings of federal debt held in federal trust funds in order to free up more room under the debt ceiling to sell securities to the public.<sup>46</sup> On November 15, 1985, \$16 billion in interest payments and a refinancing of \$10 billion in notes came due.<sup>47</sup> Treasury did not have sufficient operating cash, and did not have means available to raise the necessary funds to avoid a default. A temporary increase in the debt limit of \$70 billion through December 6, 1985 allowed Treasury enough borrowing authority to obtain the funds needed to cover the obligations.<sup>48</sup>

The debate over GRH continued beyond the December 6th temporary extension. This caused the debt limit to revert to its previous permanent level which was below the level of outstanding federal debt.<sup>49</sup> This put Treasury in an extremely tight position, and it again was forced to suspend auctions and stop investing trust fund receipts in government debt.<sup>50</sup> Finally, on December 12, 1985, the Balanced Budget and Emergency Deficit Control Act of 1985 was enacted, concurrently raising the debt limit to \$2,078.7 billion.<sup>51</sup> Also included in the legislation was authority for Treasury to fully compensate the trust funds for interest losses that occurred

<sup>&</sup>lt;sup>45</sup> Philip D. Winters, Cong. Research Serv., 98-805E, Public Debt Limit Legislation: A Brief History and Controversies in the 1980s and 1990s 6-7 (Mar. 28, 2010).

<sup>&</sup>lt;sup>46</sup> Id. at 7.

<sup>&</sup>lt;sup>47</sup> Id. at 7.

<sup>&</sup>lt;sup>48</sup> Id. at 7-8.

<sup>&</sup>lt;sup>49</sup> Id. at 8.

<sup>&</sup>lt;sup>50</sup> Id. at 8.

<sup>&</sup>lt;sup>51</sup> Balanced Budget and Emergency Deficit Control (Gramm-Rudman-Hollings) Act of 1985, Pub. L. 99-177, 99 Stat. 1037.

when Treasury failed to reinvest receipts.<sup>52</sup> Treasury immediately sold debt to the public to finance federal activities and to compensate these trust funds.<sup>53</sup>

In response to the measures taken during the GRH crisis, as part of the Omnibus Reconciliation Act of 1986, Congress gave the Treasury Secretary authority to declare a "debt issuance suspension period" or "DISP."<sup>54</sup> During a DISP, Treasury is allowed to suspend investment in, or redeem early, certain government securities for selected government funds.<sup>55</sup> Setting the process, and giving explicit approval of certain measures helped to alleviate uncertainty over what actions Treasury was allowed to take during a debt crisis.

Also in 1986, the Supreme Court struck down the automatic cuts set out in GRH, finding the role of the Comptroller General to be unconstitutional.<sup>56</sup> While efforts to restore the automatic cuts initially failed, a GRH fix was adopted in 1987 after the debt ceiling raise was again used as a lever. <sup>57</sup> GRHII fixed the constitutional flaw, revised deficit targets through 1993, and raised the debt limit from \$2.1 trillion to \$2.8 trillion.<sup>58</sup>

#### Case Study II: 1995-1996 Contract with America Showdown

In 1994, the midterm elections gave the Republican Party a majority of seats in the House for the first time since 1954.<sup>59</sup> Newt Gingrich, the new Speaker of the House, was instrumental in putting forth a party platform known as the Contract with America, which committed

<sup>&</sup>lt;sup>52</sup> Id.

<sup>&</sup>lt;sup>53</sup> A Brief History and Controversies in the 1980s and 1990s at 8.

<sup>&</sup>lt;sup>54</sup> Omnibus Budget Reconciliation Act of 1986, Pub. L. No. 99-509, 100 Stat. 1874.

<sup>&</sup>lt;sup>55</sup> A BRIEF HISTORY AND CONTROVERSIES IN THE 1980S AND 1990S at 8.

<sup>&</sup>lt;sup>56</sup> Bowsher v. Synar, 478 U.S. 714 (1986).

<sup>&</sup>lt;sup>57</sup> Balanced Budget and Emergency Deficit Control Reaffirmation (Gramm-Rudman-Hollings II) Act of 1987, Pub. L. 100-119, 101 Stat. 754.

<sup>&</sup>lt;sup>58</sup> Id.

<sup>&</sup>lt;sup>59</sup> Schick at 26. See also CHARLES O. JONES, CLINTON AND CONGRESS, 1993-1996: RISK, RESTORATION, AND REELECTION at 96 (University of Oklahoma Press, Norman, Publishing Division of the University, 1999) for details surrounding the unexpected Republican election success.

Republican candidates to certain issues.<sup>60</sup> As a sign of the political discourse during the election season, Gingrich was quoted in the Washington Post as saying "We will cooperate with anyone, and we'll compromise with no one."<sup>61</sup> This "no-compromise" attitude was taken into the first 100 days of the new 1995 Congressional session along with the commitment to the Contract with America.<sup>62</sup> Gingrich was able to bring all items in the Contract with America to a vote in the House, and all were passed except for a constitutional amendment on term limits.<sup>63</sup> However, conflict occurred when President Clinton refused to agree to spending cuts in Medicare, Medicaid, and non-defense spending. Gingrich explicitly threatened to prevent a vote raising the debt ceiling in order to force President Clinton to sign a Republican budget bill.<sup>64</sup>

In the summer of 1995, the debt ceiling stood at \$4.9 trillion. On June 29, 1995, Congress passed a budget resolution calling for the debt ceiling to be raised to \$5.5 trillion.<sup>65, 66</sup> On July 17, 1995, Treasury Secretary Robert Rubin sent a letter to Congress requesting an increase in the debt ceiling by the end of October, and followed up this letter on September 18, 1995 urging Congress to increase the debt ceiling regardless of a resolution to the budget debate.<sup>67</sup> Between October 17 and November 8, Treasury postponed auctions of Treasury bills to avoid exceeding the debt limit.<sup>68</sup> On November 10, Congress passed a temporary debt ceiling increase of \$67 billion, while at the same time repealing the Treasury Secretary's authority to

<sup>&</sup>lt;sup>60</sup> Jones at 108.

<sup>&</sup>lt;sup>61</sup> Jones at 114.

 $<sup>^{62}</sup>$  Jones at 119.

<sup>&</sup>lt;sup>63</sup> Id.

<sup>&</sup>lt;sup>64</sup> ROBERT E. RUBIN & JACOB WEISBERG, IN AN UNCERTAIN WORLD: TOUGH CHOICES FROM WALL STREET TO WASHINGTON at 169 (Random House 2003).

<sup>&</sup>lt;sup>65</sup> U.S. GOV'T ACCOUNTABILITY OFFICE, GAO/AIMD-96-130, DEBT CEILING: ANALYSIS OF ACTIONS DURING THE 1995-1996 CRISIS (August 1996), Table 2.1.

<sup>&</sup>lt;sup>66</sup> See Section 1 discussing the requirements to list a public debt level in the budget resolution, but the debt limit can only be raised through separate legislation.

 <sup>&</sup>lt;sup>67</sup> See ANALYSIS OF ACTIONS DURING THE 1995-1996 CRISIS, Table 2.1.
 <sup>68</sup> Id.

utilize certain extraordinary measures.<sup>69</sup> A stopgap resolution to keep the government running was also passed.<sup>70</sup> President Clinton vetoed both of these bills.<sup>71</sup> The federal government shut down on November 14 until a temporary resolution was passed and signed on November 20.<sup>72</sup>

As a result of the failure to increase the debt limit, on November 15, Secretary Rubin declared a debt issuance suspension period in order to raise money to make interest payments that were coming due.<sup>73</sup> The fact that Treasury was able to extend the deadline of a default weakened Gingrich's strategy of using the debt ceiling as a lever.<sup>74</sup> On November 30, Congress passed a Balanced Budget Act, concurrently raising the debt ceiling to \$5.5 trillion.<sup>75</sup> However, President Clinton again vetoed this bill on December 6.<sup>76</sup> The temporary resolution expired on December 15, and the government shut down again. At the beginning of January, a new continuing resolution was passed, ending the government shut down on January 6, 1996.<sup>77</sup>

However, a debt ceiling agreement still had not been reached. Treasury again notified Congress that additional extraordinary measures would be needed without a debt ceiling raise.<sup>78</sup> Specifically, \$30 billion in Social Security payments would not be paid. In order to avoid missing Social Security payments without raising the debt ceiling, Congress authorized Treasury

<sup>&</sup>lt;sup>69</sup> Id.

<sup>&</sup>lt;sup>70</sup> Adam Clymer, *House Approves Stopgap Budget and Higher Debt*, N.Y. TIMES, Nov. 11, 1995,

http://www.nytimes.com/1995/11/11/us/house-approves-stopgap-budget-and-higher-debt.html.

<sup>&</sup>lt;sup>71</sup> Adam Clymer, *Battle Over The Budget: The Overview;President Vetoes Stopgap Budget; Shutdown Looms*, N.Y. TIMES, Nov. 14, 1995, http://www.nytimes.com/1995/11/14/us/battle-over-budget-overview-president-vetoes-stopgap-budget-shutdown-looms.html.

<sup>&</sup>lt;sup>72</sup> Todd S. Purdum, *Battle Over The Budget: The Overview; President and G.O.P. Agree to End Federal Shutdown and to Negotiate a Budget*, N.Y. TIMES, Nov. 20, 1995, http://www.nytimes.com/1995/11/20/us/battle-over-budget-overview-president-gop-agree-end-federal-shutdown-negotiate.html.

<sup>&</sup>lt;sup>73</sup> See ANALYSIS OF ACTIONS DURING THE 1995-1996 CRISIS, Table 2.1.

<sup>&</sup>lt;sup>74</sup> Rubin at 172.

<sup>&</sup>lt;sup>75</sup> See ANALYSIS OF ACTIONS DURING THE 1995-1996 CRISIS, Table 2.1.

<sup>&</sup>lt;sup>76</sup> Todd S. Purdum, *As Long Promised, President Vetoes the G.O.P. Budget*, N.Y. TIMES, Dec. 7, 1995, http://www.nytimes.com/1995/12/07/us/as-long-promised-president-vetoes-the-gop-budget.html.

<sup>&</sup>lt;sup>77</sup> Adam Clymer, *Congress Votes to Return 760,000 to Federal Payroll and Resume Some Services; Step is Temporary*, N.Y. TIMES, Jan. 6, 1996, http://www.nytimes.com/1996/01/06/us/congress-votes-return-760000-federal-payroll-resume-someservices-step-temporary.html.

<sup>&</sup>lt;sup>78</sup> See ANALYSIS OF ACTIONS DURING THE 1995-1996 CRISIS, Table 2.1.

to issue debt that was exempt from the debt limit to make the payments.<sup>79</sup> Finally, on March 29, 1996, the debt ceiling was raised to \$5.5 trillion and Treasury began to restore the appropriate trust funds for the losses incurred during the debt crisis.<sup>80</sup>

While the debt crisis ended in March of 1996, the budget debate was not resolved until August 1997 when President Clinton and Congress agreed to a seven year balanced budget plan made up of both spending cuts and tax increases.<sup>81</sup> The Budget Act included a debt ceiling raise from \$5.5 trillion to \$5.95 trillion which was expected to last until December 1999, but actually lasted until June 2002.<sup>82</sup>

### V. CONCLUSION

The formal statistical model developed above shows that economic factors, such as recessions and the level of interest rates, play a significant role in Congressional votes to raise the debt ceiling. General political factors, such as whether the votes are taken during an election year, do not affect the magnitude of the debt ceiling increase, but the model shows that votes to raise the debt ceiling taken together with a legislative change to the budget process produce a significantly larger increase in the debt ceiling than otherwise.

<sup>&</sup>lt;sup>79</sup> See ANALYSIS OF ACTIONS DURING THE 1995-1996 CRISIS, Table 2.1.

<sup>&</sup>lt;sup>80</sup> Contract with America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 875 (increasing the debt limit to \$5,500 billion).

<sup>&</sup>lt;sup>81</sup> "Budget Reconciliation, 1997 Legislative Overview." In *Congress and the Nation, 1997-2001*, vol. 10, 48. Washington, DC: CQ Press, 2002. http://library.cqpress.com/catn/catn97-97-6343-324298.

<sup>&</sup>lt;sup>82</sup> "Reconciliation Spending Cuts, 1997 Legislative Chronology." In *Congress and the Nation, 1997-2001*, vol. 10, 50. Washington, DC: CQ Press, 2002. http://library.cgpress.com/catn/catn97-97-6343-324301.

## **APPENDIX**

### A.1 DATA SELECTION CRITERIA

Historical Table 7.3 from the Office of Management and Budget details all actions affecting the statutory debt limit from 1940 to the Present. Data used in this study was selected

| from Table 7.3 | based on t | the following | criteria: |
|----------------|------------|---------------|-----------|
|----------------|------------|---------------|-----------|

|   | Criteria Description                                                       | <b>Reasoning and Explanations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Excluded Actions<br>before 1950 and after<br>2007                          | Reasoning: To eliminate any effects of World War II and the Financial Crisis of 2008                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2 | Excluded Temporary<br>Raises 30 Days or<br>Less                            | Reasoning: To eliminate raises with the sole purpose of buying more time until a more permanent action could be taken                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 3 | Excluded Temporary<br>Date Extensions of 30<br>Days or Less                | Reasoning: To eliminate date extensions with the sole purpose of<br>buying more time until a more permanent action could be taken                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4 | Date Extensions<br>Greater than 30 days<br>were included as a \$0<br>Raise | Reasoning: To include Congress' conscious decision not to let a temporary extension expire, but not to raise the amount of the limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 5 | Excluded Temporary<br>Reversions of 30 Days<br>or Less                     | <ul> <li>Reasoning: To eliminate reversions that occurred when a decision could not be reached, but an action rectified the situation promptly</li> <li>E.g. In 1977, the permanent portion of the debt limit was \$400B, and the temporary limit was \$300B. On 9/30/77, the temporary limit expired, and the total debt limit reverted from \$700B to \$400B. On 10/4/77 the debt limit was raised to \$752B. The study views this event as a \$52B raise in the debt limit, ignoring the less than 30 day reversion.</li> <li>Note: If after a temporary reversion the limit was raised to less than the previous limit, this was counted as a decrease for the difference.</li> </ul> |
| 6 | Excluded Any Raises<br>Fully Superseded by a<br>Subsequent Raise           | <ul> <li>Reasoning: The set debt limit never went into effect, and the subsequent debt limit raise was based on the previous debt limit level</li> <li>For example: <ul> <li><u>6/1/62</u>: Congress set the debt limit for the date period 6/25/63 through 6/30/63.</li> <li><u>5/29/63</u>: Before the initial raise became effective, a new debt limit was set.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                 |

|         | Criteria Description                                                                                                                                     | <b>Reasoning and Explanations</b>                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7       | Used Statute<br>Approval Date to<br>determine<br>Independent<br>Variables if multiple<br>staged raises were<br>approved in one vote                      | <ul> <li>Reasoning: Study is testing the decision-making process at the time of the vote to enact the debt limit raise</li> <li>E.g. If on 6/30/76, the debt limit was set for two subsequent phases, 7/1/76 through 3/31/77 and 4/1/77 through 9/30/77, the makeup of Congress for the second raise beginning in 1977 is tested at the date of the vote in 1976.</li> </ul>                                                                     |
| 8       | If a Permanent Raise<br>and Temporary Raise<br>were approved<br>together, the total<br>amount of the raise<br>was used in<br>calculating the<br>increase | <ul> <li>Reasoning: The overall level of the limit, as long as the temporary portion meets the criteria discussed above, is effectively the total of the two portion raises</li> <li>E.g. If Congress raised the Permanent portion of the debt limit from \$358B to \$365B, and at the same time raised the Temporary portion of the debt limit from \$7B to \$12B, the data counts this as a \$12B total increase in the debt limit.</li> </ul> |
| 9<br>10 | Excluded Actions Not<br>Affecting the Limit<br>Amount<br>Adjusted Debt Limit<br>Amount enacted<br>2/19/1975 as 89 Stat. 5<br>from \$577B to \$531B       | Reasoning: In 1996, two actions exempted certain securities from<br>counting towards the statutory debt limit in order to temporarily<br>prevent default during a debt crisis. This data was excluded from<br>the study.<br>Reasoning: Independent analysis of 89 Stat. 5 shows the proper<br>debt limit based on the statute should be \$531B                                                                                                   |

### A.2 DATA SAMPLE

The data sample for this study, compiled using the data criteria discussed in Appendix

A.1, is included below.

|   | Statute Approval Date | Debt Limit Amount<br>(Nominal Dollars) | ADC (2007 Dollars) | INTRATE-1 | RECESSION | ADEBT-1 (2007 Dollars) | POLCONTROL | EY | EVENT | Statute Approval Date  | Debt Limit Amount<br>(Nominal Dollars) | ADC (2007 Dollars) | INTRATE-1 | RECESSION | ADEBT-1 (2007 Dollars) | POLCONTROL | EY | EVENT |
|---|-----------------------|----------------------------------------|--------------------|-----------|-----------|------------------------|------------|----|-------|------------------------|----------------------------------------|--------------------|-----------|-----------|------------------------|------------|----|-------|
|   | 8/28/1954             | 281                                    | 46.25              | 2.30      | 0         | 54.26                  | 1          | 0  | 0     | 6/30/1976              | 700                                    | 65.59              | 7.90      | 0         | 227.48                 | 0          | 1  | 0     |
|   | 6/30/1955             | 281                                    | 0.00               | 2.76      | 0         | 39.76                  | 0          | 0  | 0     | 10/4/1977              | 752                                    | 177.92             | 7.34      | 0         | 318.30                 | 1          | 0  | 0     |
|   | 7/9/1956              | 278                                    | -22.87             | 3.00      | 0         | 22.97                  | 0          | 1  | 0     | 3/27/1978              | 752                                    | 0.00               | 8.03      | 0         | 268.27                 | 1          | 0  | 0     |
|   | 7/1/1957              | 275                                    | -22.14             | 3.80      | 0         | -13.18                 | 0          | 0  | 0     | 8/3/1978               | 798                                    | 146.28             | 8.64      | 0         | 268.27                 | 1          | 0  | 0     |
|   | 2/26/1958             | 280                                    | 35.87              | 3.09      | 1         | -11.06                 | 0          | 0  | 0     | 4/2/1979               | 830                                    | 91.39              | 9.12      | 0         | 231.28                 | 1          | 0  | 0     |
|   | 9/2/1958              | 288                                    | 57.40              | 3.54      | 0         | -11.06                 | 0          | 0  | 0     | 9/29/1979              | 879                                    | 139.94             | 9.03      | 0         | 231.28                 | 1          | 0  | 0     |
|   | 6/30/1959             | 295                                    | 49.88              | 4.31      | 0         | 45.02                  | 0          | 0  | 0     | 6/28/1980              | 925                                    | 115.75             | 10.18     | 1         | 156.86                 | 1          | 1  | 0     |
|   | 6/30/1960             | 293                                    | -14.01             | 4.35      | 1         | 50.05                  | 0          | 1  | 0     | 12/19/1980             | 935.1                                  | 25.41              | 12.68     | 0         | 156.86                 | 1          | 0  | 0     |
|   | 6/30/1961             | 298                                    | 34.67              | 3.71      | 0         | 9.86                   | 1          | 0  | 0     | <br>2/7/1981           | 985                                    | 113.82             | 12.57     | 0         | 204.09                 | 0          | 0  | 0     |
|   | 3/13/1962             | 300                                    | 13.73              | 4.04      | 0         | 17.20                  | 1          | 0  | 0     | 9/30/1981              | 1079.8                                 | 216.24             | 14.94     | 1         | 204.09                 | 0          | 0  | 0     |
|   | 7/1/1962              | 308                                    | 54.93              | 3.91      | 0         | 17.20                  | 1          | 0  | 0     | 6/28/1982              | 1143.1                                 | 136.01             | 13.62     | 1         | 205.51                 | 0          | 0  | 0     |
|   | 7/1/1962              | 305                                    | -20.60             | 3.91      | 0         | 17.20                  | 1          | 0  | 0     | 9/30/1982              | 1290.2                                 | 316.06             | 13.06     | 1         | 205.51                 | 0          | 0  | 0     |
|   | 5/29/1963             | 307                                    | 13.55              | 3.97      | 0         | 62.24                  | 1          | 0  | 0     | 5/26/1983              | 1389                                   | 205.68             | 10.40     | 0         | 309.61                 | 0          | 0  | 0     |
|   | 5/29/1963             | 309                                    | 13.55              | 3.97      | 0         | 62.24                  | 1          | 0  | 0     | 11/21/1983             | 1490                                   | 210.26             | 11.54     | 0         | 309.61                 | 0          | 0  | 0     |
|   | 8/27/1963             | 309                                    | 0.00               | 4.02      | 0         | 62.24                  | 1          | 0  | 0     | <br>5/25/1984          | 1520                                   | 59.87              | 12.63     | 0         | 489.29                 | 0          | 1  | 0     |
|   | 11/26/1963            | 315                                    | 40.66              | 4.11      | 0         | 62.24                  | 1          | 0  | 0     | <br>7/6/1984           | 1573                                   | 105.77             | 13.56     | 0         | 489.29                 | 0          | 1  | 0     |
|   | 6/29/1964             | 324                                    | 60.20              | 4.20      | 0         | 51.15                  | 1          | 1  | 0     | <br>10/13/1984         | 1823.8                                 | 500.49             | 12.52     | 0         | 489.29                 | 0          | 1  | 0     |
|   | 6/24/1965             | 328                                    | 26.33              | 4.21      | 0         | 37.86                  | 1          | 0  | 0     | <br>12/12/1985         | 2078.7                                 | 491.18             | 9.78      | 0         | 389.18                 | 0          | 0  | 1     |
|   | 6/24/1966             | 330                                    | 12.80              | 4.78      | 0         | 36.49                  | 1          | 0  | 0     | <br>8/21/1986          | 2111                                   | 61.11              | 7.30      | 0         | 483.28                 | 0          | 0  | 0     |
|   | 3/2/1967              | 336                                    | 37.25              | 4.63      | 0         | 13.87                  | 1          | 0  | 0     | <br>10/21/1986         | 2300                                   | 357.55             | 7.45      | 0         | 483.28                 | 0          | 0  | 0     |
|   | 6/30/1967             | 365                                    | 180.03             | 4.85      | 0         | 13.87                  | 1          | 0  | 0     | <br>5/15/1987          | 2320                                   | 36.50              | 8.02      | 0         | 543.33                 | 0          | 0  | 0     |
|   | 4/7/1969              | 377                                    | 67.80              | 6.30      | 0         | 151.28                 | 0          | 0  | 0     | <br>8/10/1987          | 2352                                   | 58.41              | 8.45      | 0         | 543.33                 | 0          | 0  | 0     |
|   | 6/30/1970             | 395                                    | 96.19              | 7.91      | 1         | 42.78                  | 0          | 0  | 0     | 9/29/1987              | 2800                                   | 817.69             | 8.76      | 0         | 543.33                 | 0          | 0  | 1     |
|   | 3/17/19/1             | 430                                    | 179.18             | 6.11      | 0         | 88.14                  | 0          | 0  | 0     | <br>8/7/1989           | 2870                                   | 117.05             | 8.02      | 0         | 439.67                 | 0          | 0  | 0     |
|   | 3/15/19/2             | 450                                    | 99.21              | 6.08      | 0         | 133.36                 | 0          | 1  | 0     | 11/8/1989              | 3122.7                                 | 422.54             | 8.01      | 0         | 439.67                 | 0          | 0  | 0     |
|   | 10/27/1072            | 450                                    | 0.00               | 6.11      | 0         | 133.36                 | 0          | 1  | 0     | <br>8/9/1990           | 3195                                   | 114.70             | 8.4/      | 1         | 406.16                 | 0          | 0  | 0     |
|   | 7/1/19/2              | 465                                    | /4.41              | 6.33      | 0         | 133.30                 | 0          | 1  | 0     | <br>11/5/1990          | 4145                                   | 1,507.08           | 8.72      | 1         | 406.16                 | 1          | 0  | 1     |
|   | 12/2/1072             | 405                                    | 40.07              | 6.90      | 1         | 144.33                 | 0          | 0  |       | <br>4/0/1993           | 43/0                                   | 322.85             | 5.98      | 0         | 505.98                 | 1          | 0  | 1     |
|   | 12/3/19/3             | 4/3./                                  | 49.9/              | 0./3      | 1         | 144.33                 | 0          | 0  |       | 0/10/1993<br>2/20/1000 | 4900                                   | 700.49             | 5.01      | 0         | 270.05                 | 1          | 1  | 1     |
| ļ | 0/30/19/4             | 495<br>521                             | 01.1/              | 7.50      | 1         | 142.49                 | 0          | 0  | 0     | 3/29/1996<br>8/5/1007  | 5050                                   | 192.89<br>581.22   | 5.81      | 0         | 222 00                 | 0          | 1  | 1     |
|   | 6/20/1075             | 531                                    | 130.74             | 8.04      | 1         | 71.13                  | 0          | 0  | 0     | 6/28/2002              | 6400                                   | 518 64             | 5.16      | 0         | 165 20                 | 0          | 0  | 1     |
|   | 11/1/1075             | 505                                    | 60 27              | 8 14      | 0         | 71.15                  | 0          | 0  | 0     | 5/27/2002              | 7384                                   | 1 108 82           | 3.10      | 0         | 103.28                 | 1          | 0  | 0     |
|   | 3/15/1076             | 627                                    | 116.61             | 7 70      | 0         | 227 19                 | 0          | 1  |       | 11/10/2004             | 8184                                   | 878 10             | 1 10      | 0         | 6/0 21                 | 1          | 0  | 0     |
|   | 6/30/1976             | 636                                    | 32.80              | 7 90      | 0         | 227.40                 | 0          | 1  | 0     | 3/20/2004              | 8965                                   | 803 24             | 4.10      | 0         | 570.84                 | 1          | 0  | 0     |
|   | 6/30/1976             | 682                                    | 167.62             | 7.90      | 0         | 227.48                 | 0          | 1  | 0     | 9/29/2007              | 9815                                   | 850.00             | 4.67      | 0         | 564 88                 | 0          | 0  | 0     |
| ų | 0,00,17,0             | 004                                    | 101.04             |           |           | /0                     |            | -  |       | 2, 2, 2001             | 2010                                   | 000.00             | /         | 0         | 201.00                 | 0          |    |       |

### A.3 SUMMARY STATISTICS

### Table A.3-1: Descriptive Statistics of Variables

| Dependent Variable<br>ΔDC (\$BN2007) | <u>Minimum</u><br>-22.87 | Median<br>93.79 | Average<br>210.76 | Maximum<br>1,507.08 | Standard<br>Deviation<br>301.75 |
|--------------------------------------|--------------------------|-----------------|-------------------|---------------------|---------------------------------|
|                                      |                          | Mation          |                   |                     | Standard                        |
| Numerical Independent Variables      | Minimum                  | Median          | Average           | Maximum             | Deviation                       |
| INIKAIE-1 (%)                        | 2.30                     | 6.82            | 7.03              | 14.94               | 3.02                            |
| ΔDEBT-1 (\$BN2007)                   | -13.18                   | 184.69          | 228.36            | 649.31              | 193.25                          |
|                                      |                          | % Occurrence    |                   |                     |                                 |
|                                      | # of                     | out of 72 Data  |                   |                     |                                 |
| Binary Independent Variables         | Occurrences              | Points          |                   |                     |                                 |
| RECESSION                            | 12                       | 16.7%           |                   |                     |                                 |
| POLCONTROL                           | 26                       | 36.1%           |                   |                     |                                 |
| EY                                   | 15                       | 20.8%           |                   |                     |                                 |
| EVENT                                | 5                        | 6.9%            |                   |                     |                                 |

## Table A.3-2: Independent Variable Correlation Table

|            | INTRATE-1 | RECESSION | ΔDEBT-1 | POLCONTROL | EY    | EVENT |
|------------|-----------|-----------|---------|------------|-------|-------|
| INTRATE-1  | 1.00      | 0.27      | 0.37    | -0.35      | 0.13  | 0.08  |
| RECESSION  |           | 1.00      | -0.14   | -0.26      | -0.05 | 0.02  |
| ΔDEBT-1    |           |           | 1.00    | -0.13      | 0.00  | 0.32  |
| POLCONTROL |           |           |         | 1.00       | -0.24 | -0.09 |
| EY         |           |           |         |            | 1.00  | -0.14 |
| EVENT      |           |           |         |            |       | 1.00  |

### A.4 REGRESSION RESULTS

### Table A.4-1: Regression Results

| Regression Stat   | tistics      |                |            |         |                |
|-------------------|--------------|----------------|------------|---------|----------------|
| Multiple R        | 0.775        |                |            |         |                |
| R Square          | 0.601        |                |            |         |                |
| Adjusted R Square | 0.564        |                |            |         |                |
| Standard Error    | 199.146      |                |            |         |                |
| Observations      | 72           |                |            |         |                |
| ANOVA             |              |                |            |         |                |
|                   | df           | SS             | MS         | F       | Significance F |
| Regression        | 6            | 3886834.284    | 647805.714 | 16.334  | 0.000          |
| Residual          | 65           | 2577832.295    | 39658.958  |         |                |
| Total             | 71           | 6464666.579    |            |         |                |
|                   |              |                |            |         |                |
|                   | Coefficients | Standard Error | t Stat     | P-value |                |
| Intercept         | 97.536       | 74.132         | 1.316      | 0.193   |                |
| INTRATE-1         | -24.499      | 9.374          | -2.613     | 0.011   |                |
| RECESSION         | 149.683      | 70.025         | 2.138      | 0.036   |                |
| ∆DEBT-1           | 0.977        | 0.145          | 6.745      | 0.000   |                |
| POLCONTROL        | 23.525       | 55.005         | 0.428      | 0.670   |                |
| EY                | -10.659      | 61.086         | -0.174     | 0.862   |                |
| EVENT             | 448.821      | 99.376         | 4.516      | 0.000   |                |

Note: Gray cells are statistically significant with a t-Stat greater than 2.

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