AMERICAN UNIVERSITY OF BEIRUT

# INCOME SMOOTHING IN THE BANKING INDUSTRY

by

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AMERICAN UNIVERSITY OF BEIRUT

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# AN ABSTRACT OF THE PROJECT OF

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In this study, I investigate some of the possible correlates of income smoothing. I try to find a relation between the provision for loan losses and some variables used in the related literature. I try to contribute to the literature by adding the change in stock price as a motivator for income smoothing. The volatility of a company's stock price is not desirable by investors. This is why a change in stock price motivates firms to smooth income using loan loss provisions in order to give an image of stability. I use a sample of 79 of the largest banks listed in the New York Stock Exchange by market capitalization as of end of 2009 during the period of 1993-2009. The results show no significant relation between the change in stock price and loan loss provisions, but the other variables remain more or less consistent with the literature with a strong level of significance.

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# CHAPTER I

# INTRODUCTION

Financial statements do not always represent the true performance of a company. Managers use accounting techniques to stabilize income fluctuations from one period to another, a practice called income smoothing. When earnings in a period are above a certain level, it is common practice for managers to record some of those earnings into another period where earnings might not be as high, thus showing a smoother income stream and creating an image of stability for the firm.

There are a lot of reasons why a firm would smooth income. Some people argue that managers' job security is the main motivation for giving a better image of performance. Others say that the propensity for a firm to smooth income is mainly due to managers' personal motivations and ambitions since their end of year bonus is directly related to the firm's performance. Since earnings variability is used as a measure of risk, firms may engage in income smoothing practices in order to attract more investors.

In this paper I try to focus on that last aspect of income smoothing and more specifically in the banking industry. Banking is typically one of the least risky industries since it has to do with the investment of people's money. However this image could be in part due to managers' income smoothing activities which create a false image of stability in an industry that requires a high degree of public confidence. I will try to investigate the relationship between the provision for loan losses and the change in the company's stock price at the close of the calendar year. Loan loss provisions are the bank's estimation of the value of outstanding loans that will default. It is an expense

that accounts for the feebleness of the bank's loan portfolio. Since it is a discretionary variable, managers can use it as a tool for market signaling. A company's stock price is an important indicator of the ease a company would have in raising capital. When the stock price increases, money can be brought into the company more easily. Generally, firms with a smoother income stream are the ones that are most desired by investors who are afraid of volatility. This is why I suspect a change in the stock price may be a motivator for income smoothing.

Using data from the Compustat Database, I investigate the effect of the change in stock price at the close of the calendar year on banks' loan loss provisions. I use a sample of 79 of the largest banks in the United States by market capitalization as of the end of 2009, with data ranging from 1993 to 2009 to construct a panel data set. The variables used in the model are the same or proxies for the ones used in the related literature except for the addition of changes in the stock price.

In an era of great financial instability and debate about bank deregulation, the subject of income smoothing is as current as ever. Information asymmetry, where managers have a better idea than investors about the bank's true performance, has become one of the main concerns of regulators.

In the next section I will review the literature related to the subject, then I will conduct my own empirical analysis followed by a conclusion.

# CHAPTER II

# LITERATURE REVIEW

A lot of literature has been written on the subject of income smoothing in the banking as well as other industries. Studies show different reasons why banks would smooth income. Some of the literature is purely theoretical while some adopt a more empirical approach.

## A. Theoretical Literature

Fudenberg and Tirole (1995) construct a theoretical economic model that explains reasons behind income smoothing and earnings management. The model is based on the assumption that managers are compensated depending on the performance of the units they are managing. The manager is assumed to earn a private benefit from the firm and is risk averse when it comes to income. The firm itself will take action anytime it feels the manager is underperforming by either firing him, closing down the business or both. In case of bad performance, the manager's own private benefits are reduced. This creates an incentive for the manager smooth earnings to maximize his tenure and compensation. The model takes into consideration information decay which states that more recent information is more valuable than old information. Therefore, in a three period model, the manager will reduce income in during good times in anticipation of future bad performance. This way, the performance in the last period will be optimal for the manager. The model also makes a distinction between earnings reports and dividends. The latter can be used as a powerful signaling device for investors and debt holders. Finally, the authors suggest an extension to their model by

suggesting smoothing in hierarchies rather than a simple principle agent framework. This can be done by studying the model of many units within a firm reporting to a corporate headquarters which in turn reports to investors.

Dye (1988) raises the issue of asymmetric information and uses an overlapping generation model to try to describe the situations that are most favorable for income smoothing and to show the costs and benefits of income smoothing to shareholders. There is an internal and external demand for earnings management. Once stockholders have decided which dynamic in the firm they seek their management to implement, they must design a compensation plan to encourage management to choose that action. External demand for earnings management in contrast is when shareholders can improve contractual terms with outsiders by smoothing income. Managers are unable to divulge the full information to shareholders, and investors cannot completely reveal the manager's compensation schemes, this is a form of asymmetric information.

Trueman and Titman (1988) have shown that managers always have an incentive to smooth income. Some industries are more prone to smoothing income than others. Trueman and Titman assume that risk-averse investors always prefer a smooth income stream which affects the share price of the firm. Managers have the goal to increase the cash flows accruing to investors. Firms' future stakeholders are adversely affected by the volatility of earnings. The volatility increases the cost of firms' future debt and in turn the financing of future projects. This is because the price that a firm pays for debt is directly related to the perceived risk of bankruptcy which is influenced by the volatility of earnings. Income smoothing reduces the perceived risk of bankruptcy to investors. For these reasons, managers try to decrease the variance of the firm's earnings. This is an agency theory approach to the problem. The authors propose

some extensions to their literature. The model used assumes that all firms sell securities to debtors, which is not the case in the real world and a separate model could be constructed to account for this. The variance of earnings is assumed to be unknown to investors and the mean known. The model can be constructed in a way that variance is known and the mean unknown. In this case, managers always have an incentive to increase reported earnings thus giving investors higher expectations of future income. This also increases the price of the securities sold.

## B. Empirical Literature

### *1. Cross Sectional Studies*

Ma (1988) tries to find evidence of income smoothing in the United States banking industry through the use of loan loss provisions. Characteristics of the best smoothing devices are defined in his paper. It should not commit a firm to any future actions, it should be consistent with the generally accepted accounting principle, it shouldn't require any real transaction and it must be used over consecutive time periods. He states that like any other company, a bank has an incentive to smooth income and the principal agent problem is exacerbated. The bank needs to show an even greater image of stability since the deposits of the customers are at stake. The loan loss provision is a discretionary accounting value which leaves room for some flexibility on the managers' side. The econometric model in this paper shows that loan loss provisions are not related to the quality of the outstanding loans but rather to the operating income. When income is high (low) provisions are increased (decreased).

Eckel (1981) talks about two types of income smoothing. Artificial smoothing is where firms use accounting manipulations, which can involve shifting costs and

revenues into another period. Real smoothing on the other hand is done by undertaking actual transactions in order to change income. This might include selecting projects based on its smoothing effect. In his study, Eckel finds no concrete evidence of income smoothing, 97 percent of the firms in his sample were either unsuccessful in smoothing their income or were not even attempting to do so.

Koch (1981) performed an experiment where he showed that widely held corporations (i.e publicly traded) are more likely to smooth than closely held corporations (i.e small corporations with one shareholder). Artificial variables are more likely to be used as smoothing instruments than real variables.

Liberty and Zimmerman (1986) hypothesize that firms are most likely to smooth income during labor contract negotiations. Management are said to reduce earnings during these periods in order to better negotiate in their favor. For this study, a sample of firms from unionized and not unionized companies was used during the period from 1968 to 1981. The results however are not conclusive because during the sample period, earnings were already low leaving little incentive for smoothing.

***2. Panel Data Studies***

Healy (1985) states that managers tend to choose accounting procedures depending on their bonus and compensation contracts. He analyzed a bonus scheme where managers do not earn a bonus if earnings are below a certain level, a fixed bonus beyond a certain level and a discretionary bonus when earnings are somewhere between the upper and lower levels. A sample of the 250 largest industrial firms in the United States is used where bonus plans are commonly discussed during the companies' annual meetings. The test results show that bonus schemes do indeed create an incentive for

managers to smooth income since there is a high correlation between changes in accounting procedures and individual bonus contracts.

DeFond and Park (1997) further support this by showing that concerns about job security create an incentive for managers to smooth income using expected future performance to increase current operating income or, conversely, if current income is above the required level, to project it to another period in anticipation of bad future performance. A large sample of firms from different industries is used in order to test for this. It is an extension of a model by Jones (1991) who tries to find a relation between income smoothing and import protection.

Fonseca and Gonzalez (2008) use a panel econometric model to see the extent of income smoothing through loan provisions. With a sample of 4,546 banks across 41 countries, they try accounting for many different variables such as the amount of investor protection, regulation... The paper finds no consistent reason for income smoothing across countries as they are numerous and varied. Investor protection and regulation seems to be the best way to reduce income smoothing.

Cavallo and Majnoni (2001) take into consideration the level of institutional development with loan loss provisioning practices as well as the assertiveness of outsiders such as fiscal authorities and small shareholders. Their empirical analysis shows that the agency problem is greatly reduced when there is more governmental control.

Kanagaretnam et al. (2004) introduce a new approach to the subject by using an indicator of the value of the firm. Loan loss provisions are more likely to be used as a signaling device in firms that are undervalued. To show this, firms were categorized

into subgroups in order to isolate the ones that are most likely to smooth. This proved that the incentive to smooth is not uniform across the whole banking industry.

Greenawalt and Sinkey (1988) find evidence of income smoothing by using a GLS model and a sample of 106 of the largest U.S bank holding companies during the period of 1976 to 1984. Loan loss provisions are considered the main tool for income smoothing. Their research finds that regional banks are more likely to smooth than money-center banks.

In this study, I focus mainly on the interaction between the stock price at the close of the calendar year and the loan loss provisions. The empirical model used will be presented in the next section.

# CHAPTER III

# EMPIRICAL ANALYSIS

## A. Description of Data

I use a sample of the 79 largest banks in the United States as of the end of 2009 ranked by market capitalization. The observations span from 1993 to 2009, taken from the Compustat database. Following are the variables used:

LLP: Loan Loss Provisions, my dependent are considered as the main tool for income smoothing. They represent an allowance set aside from the profit account in order to account for bad loans. This variable is usually estimated by the management based on historical loan defaults, however, there is some flexibility which allows for earnings management in order to stabilize income.

CPC: The change in the stock price at the end of a calendar year closing. In this study, it is considered as the main item influencing LLP. I investigate the role of the stock price variation from year to year in LLP variation.

Cash: Cash and Equivalents represent the ending balance of cash and its equivalents. They are the most liquid items on the balance sheet and the most readily convertible into cash. They include short-term assets such as short-term government bonds, commercial paper…

DIV: Dividends Cash Common are the total amount of cash dividends paid on common stock.

GDP: Gross Domestic Product. It allows us to account for the macroeconomic environment and business cycles.

GP: Gross Profit, the difference between Sales and the Cost of Goods Sold.

INT: Intangibles are any non-monetary asset on the balance sheet, they might include patents, licenses, operating rights, trade secrets and job know-how…

INV: Investments and advances other represent mainly real estate investments and investments in unconsolidated companies in which it is hard to verify the validity of the numbers. It might include for example real estate investments that companies can report as earnings that no one can verify accurately.

LIAB: Total liabilities represent all current as well as long term liabilities present on the bank's balance sheet.

NIL: Net Income (Loss) of the company is expenses and losses subtracted from revenues and gains.

OI: Operating Income before depreciation represents income from normal business operations

OIA: Operating Income After Depreciation is operating income that includes depreciation amortization

Plant: Plant Property and Equipment (Net) is the net cost or valuation of fixed assets less depreciation

REC: Receivables Total (Net) is the total amount of money the bank expects to receive from its customers.

Below is a table summarizing some descriptive statistics regarding the variables:

| Variable | Mean | Median | Maximum | Minimum | Std. Dev. | Sum | Sum Sq. Dev. | Observations |
|---|---|---|---|---|---|---|---|---|
| CASH | 6422.45 | 393.84 | 368149 | 0.08 | 25063.26 | 8426255. | 8.24E+11 | 1312 |
| CPC | 0.02 | 0.01 | 7.51 | -1 | 0.40 | 22.51 | 206.84 | 1294 |
| CPC_GDP | 8.91E-07 | 0 | 0 | 0 | 1.07E-05 | 0 | 1.53E-07 | 1343 |
| DIV | 322.91 | 37.71 | 11301 | 0 | 1068.16 | 423653.7 | 1.50E+09 | 1312 |
| CPC_TA | 2.03E-05 | 1.33E-08 | 0.01 | -0.01 | 0 | 0.02 | 0 | 1313 |
| GDP | 36244.12 | 35898 | 46971 | 25327 | 7073.99 | 48675850 | 6.72E+10 | 1343 |
| GP | 6494.35 | 400.63 | 1600000. | -2,070.49 | 59816.91 | 8520590. | 4.69E+12 | 1312 |
| INT | 2475.42 | 137.78 | 118114.0 | 0 | 9468.43 | 2935844. | 1.06E+11 | 1186 |
| INV | 20176.87 | 2134.37 | 891148.0 | 1.35 | 79046.53 | 26472056 | 8.19E+12 | 1312 |
| LIAB | 21025.10 | 665.31 | 1900000. | 0 | 105092.50 | 27605951 | 1.45E+13 | 1313 |
| LLP | 489.56 | 17.50 | 48570.00 | -47.00 | 2583.33 | 642298.20 | 8.75E+09 | 1312 |
| NIL | 621.26 | 90.66 | 21133.00 | -34,414.60 | 2308.92 | 815718.50 | 6.99E+09 | 1313 |
| OI | 1750.32 | 220.45 | 44319.00 | -3,739.18 | 5127.70 | 2296422. | 3.45E+10 | 1312 |
| TA | 83818.13 | 9395.43 | 3800000. | 87.50 | 299887.6 | 1.10E+08 | 1.18E+14 | 1313 |
| RET | 3356.86 | 443.07 | 116416.00 | -3,105 | 10468.22 | 4407552. | 1.44E+11 | 1313 |
| REC | 44491.08 | 5476.95 | 2100000. | 1.33 | 151595.20 | 58372300 | 3.01E+13 | 1312 |
| PLANT | 967.90 | 136.05 | 37205.60 | 0.000000 | 3151.03 | 1270858. | 1.30E+10 | 1313 |
| OIA | 1553.70 | 198.87 | 41450.00 | -4,180.79 | 4609.44 | 2038461. | 2.79E+10 | 1312 |

**Summary Table 1**

Most of the literature related to the subject uses the above variables or variables close to them except for CPC.

## B. Regression Analysis

Regression 1:

I start by running a simple constant coefficients model with LLP being the dependent variable. The results of this regression are listed in TABLE (1). Following is the regression equation:

$$LLP = \alpha + \beta_1 CASH + \beta_2 CPC + \beta_3 DIV + \beta_4 GDP + \beta_5 GP + \beta_6 INT + \beta_7 INV + \beta_8 LIAB + \beta_9 NIL + \beta_{10} OI + \beta_{11} TA + \beta_{12} RET + \beta_{13} REC + \beta_{14} PLANT + \beta_{1}$$

Below is the regression result which includes Year Dummy variables that are shown in TABLE (1) of the appendix:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:09
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1867.831 | 1.54E+09 | -1.21E-06 | 1.0000 |
| CASH_? | 0.000617 | 0.003816 | 0.161778 | 0.8715 |
| REC_? | 0.008433 | 0.002756 | 3.059616 | 0.0023 |
| PLANT_? | -0.186395 | 0.027825 | -6.698811 | 0.0000 |
| INV_? | -0.011268 | 0.002673 | -4.215197 | 0.0000 |
| INT_? | 0.122143 | 0.009677 | 12.62211 | 0.0000 |
| TA_? | 0.010114 | 0.002698 | 3.749317 | 0.0002 |
| LIAB_? | 0.004790 | 0.001960 | 2.444282 | 0.0147 |
| RET_? | 0.174934 | 0.009323 | 18.76351 | 0.0000 |
| GP_? | -0.038592 | 0.001602 | -24.08615 | 0.0000 |
| OI_? | -0.015609 | 0.090858 | -0.171799 | 0.8636 |
| OIA_? | 0.071938 | 0.098233 | 0.732326 | 0.4641 |
| NIL_? | -0.709862 | 0.038496 | -18.43971 | 0.0000 |
| DIV_? | -2.036045 | 0.065880 | -30.90544 | 0.0000 |
| CPC_? | -40.43321 | 69.98150 | -0.577770 | 0.5635 |
| GDP | 0.034580 | 33216.15 | 1.04E-06 | 1.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.905637 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.903051 | S.D. dependent var | 2737.656 |
| S.E. of regression | 852.4159 | Akaike info criterion | 16.36116 |
| Sum squared resid | 8.22E+08 | Schwarz criterion | 16.50035 |
| Log likelihood | -9482.012 | Hannan-Quinn criter. | 16.41367 |
| F-statistic | 350.1492 | Durbin-Watson stat | 1.550939 |
| Prob(F-statistic) | 0.000000 | | |

**Regression 1**

The results show an R-squared of 0.90 which bodes well for the model. The variable CPC has a very large coefficient of -40.43, however, with a very high p-value (0.56), it is not significant, so the change in stock price at the close of the calendar year does not have a significant effect on the Loan Loss Provisions. The remaining variables are more or less consistent with the literature: DIV has a coefficient of -2.06 and is

significant at the 1% level, this means that when dividends increase, LLP decreases. GP has a low coefficient of -0.04 and is significant at the 1% level, this means that when profits increase by 1 unit, LLP decreases by four percentage points. This is consistent with the literature and it makes sense because an increase in profits allows a company to reduce their provisions. INT has a coefficient of 0.12 and is significant at the 1% level. This means that when INT increases by 1 unit, LLP increases by 12 percentage points. INV has a coefficient of -0.01 and is significant at the 1% level, so a 1 unit increase in INV decreases LLP by 1%. INV mostly represent real estate investments that cannot be verified accurately which allows managers to use it as a smoothing device; any decrease in INV can be recorded as an increase in LLP. LIAB has a coefficient of 0.004 and is significant at the 1% level; it is positively related to LLP which is consistent with the literature. NIL has a coefficient of -0.71 and is significant at the 1% level. A 1 unit increase in NIL reduces LLP by 71 percentage points, so when income increases, managers decide to carry less provisions. PLANT has a coefficient of -0.19 and is significant at the 1% level so a 1 unit increase in PLANT value decreases provisions by 19 percentage points. REC has a coefficient of 0.008 and is significant at the 1% level. A 1 unit increase in REC increases LLP by 0.8. This is a relatively weak relation considering that REC represents all the money owed to the bank by customers. Finally, TA has a coefficient of 0.01 and is significant at the 1% level, which means that a 1 unit increase in TA increases LLP by 1 percentage point. The rest of the variables are insignificant. As we can see, most of the variables are consistent with the literature on the subject. However, my variable of interest, CPC, is not significant.

Regression 2:

I run another regression with the same variables only this time using bank fixed effects. Results are reported in Table (5). Following is the regression equation:

$$LLP = \alpha + \beta_1 CASH + \beta_2 CPC + \beta_3 DIV + \beta_4 GDP + \beta_5 GP + \beta_6 INT + \beta_7 INV + \beta_8 LIAB + \beta_9 NIL + \beta_{10} OI + \beta_{11} TA + \beta_{12} RET + \beta_{13} REC + \beta_{14} PLANT + \beta_{1}$$

Below is the regression result which includes Year Dummy variables and bank fixed effects that are shown in TABLE (5) of the appendix:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:09
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -218.9155 | 6.83E+08 | -3.20E-07 | 1.0000 |
| CASH_? | 0.015068 | 0.004308 | 3.497588 | 0.0005 |
| REC_? | 0.006945 | 0.002754 | 2.521430 | 0.0118 |
| PLANT_? | -0.119710 | 0.041496 | -2.884848 | 0.0040 |
| INV_? | -0.000932 | 0.003432 | -0.271678 | 0.7859 |
| INT_? | 0.093034 | 0.011363 | 8.187312 | 0.0000 |
| TA_? | 0.007849 | 0.003039 | 2.582913 | 0.0099 |
| LIAB_? | 0.006400 | 0.002179 | 2.936674 | 0.0034 |
| RET_? | 0.149768 | 0.011180 | 13.39561 | 0.0000 |
| GP_? | -0.039303 | 0.001931 | -20.34963 | 0.0000 |
| OI_? | 0.149615 | 0.118953 | 1.257771 | 0.2088 |
| OIA_? | -0.067672 | 0.123783 | -0.546699 | 0.5847 |
| NIL_? | -0.733429 | 0.037179 | -19.72711 | 0.0000 |
| DIV_? | -1.879766 | 0.066040 | -28.46391 | 0.0000 |
| CPC_? | -55.61428 | 66.78755 | -0.832704 | 0.4052 |
| GDP | -0.002326 | 14723.48 | -1.58E-07 | 1.0000 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.924152 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.916301 | S.D. dependent var | 2737.656 |
| S.E. of regression | 792.0246 | Akaike info criterion | 16.27687 |
| Sum squared resid | 6.61E+08 | Schwarz criterion | 16.75534 |
| Log likelihood | -9354.999 | Hannan-Quinn criter. | 16.45738 |
| F-statistic | 117.7074 | Durbin-Watson stat | 1.617687 |
| Prob(F-statistic) | 0.000000 | | |

**Regression 2**

The R-squared is 0.92 which is again a good indicator of the strength of the model. CPC has a high coefficient of -55.61 but it is insignificant with a p-value of 0.41. I will highlight some important results in this regression that are again consistent with the related literature. GP has a coefficient of -0.04 and is significant at the 1% level. DIV has a coefficient of -1.88 and is significant at the 1% level. So again, DIV is negatively related to Loan Loss Provisions as shown in the first regression and in the literature. INT has a coefficient of 0.09 and is significant at the 1% level. LIAB has a coefficient of 0.006 and is significant at the 1% level. NIL has a coefficient of -0.73 and is significant at the 1% level. PLANT has a coefficient of -0.12 and is significant at the 1% level. REC has a coefficient of 0.006 and is significant at the 5% level. TA has a coefficient of 0.01 and is significant at the 1% level. The results of this regression are the same as the first in terms of significance with the coefficients of the variables varying only slightly. Since CPC is still insignificant I run a series of regressions described in the following subsections.

Regression 3:

I run a standard OLS regression with a linear term in CPC and the interaction term CPC_TA which allows for the effect of the change in stock price to vary by bank size (Results in Table 2). The following is the regression equation:

$$LLP = \alpha + \beta_1 CASH + \beta_2 CPC + \beta_3 DIV + \beta_4 GDP + \beta_5 GP + \beta_6 INT + \beta_7 INV + \beta_8 LIAB + \beta_9 NIL + \beta_{10} OI + \beta_{11} TA + \beta_{12} RET + \beta_{13} REC + \beta_{14} PLANT + \beta_{1}$$

Below is the regression result which includes Year Dummy variables that are shown in TABLE (2) of the appendix:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:10
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1782.438 | 1.55E+09 | -1.15E-06 | 1.0000 |
| CASH_? | 0.000620 | 0.003817 | 0.162508 | 0.8709 |
| REC_? | 0.008435 | 0.002758 | 3.058664 | 0.0023 |
| PLANT_? | -0.186450 | 0.027839 | -6.697546 | 0.0000 |
| INV_? | -0.011268 | 0.002674 | -4.213208 | 0.0000 |
| INT_? | 0.122127 | 0.009682 | 12.61424 | 0.0000 |
| TA_? | 0.010112 | 0.002699 | 3.746715 | 0.0002 |
| LIAB_? | 0.004793 | 0.001961 | 2.444645 | 0.0147 |
| RET_? | 0.174951 | 0.009327 | 18.75736 | 0.0000 |
| GP_? | -0.038591 | 0.001603 | -24.07441 | 0.0000 |
| OI_? | -0.015440 | 0.090895 | -0.169867 | 0.8651 |
| OIA_? | 0.071842 | 0.098272 | 0.731055 | 0.4649 |
| NIL_? | -0.709871 | 0.038516 | -18.43052 | 0.0000 |
| DIV_? | -2.036259 | 0.065915 | -30.89227 | 0.0000 |
| CPC_? | -44.27570 | 72.25695 | -0.612753 | 0.5402 |
| CPC_TA_? | 14189.15 | 66180.69 | 0.214400 | 0.8303 |
| GDP | 0.032728 | 33459.64 | 9.78E-07 | 1.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.905641 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.902969 | S.D. dependent var | 2737.656 |
| S.E. of regression | 852.7757 | Akaike info criterion | 16.36283 |
| Sum squared resid | 8.22E+08 | Schwarz criterion | 16.50638 |
| Log likelihood | -9481.988 | Hannan-Quinn criter. | 16.41699 |
| F-statistic | 338.9224 | Durbin-Watson stat | 1.550908 |
| Prob(F-statistic) | 0.000000 | | |

**Regression 3**

The results show an R-squared of 0.92 which is a good indicator of the regression's strength. CPC has a large coefficient of -44.27 but the p-value is 0.54 which makes it statistically insignificant. The variable DIV has a coefficient of -2.03 and is significant at the 1% level. GP has a coefficient of -0.04 and is significant at the 1% level so a 1 unit increase in GP reduces LLP by 4 percentage points. INT has a coefficient of 0.12 and is significant at the 1% level. INV has a very small coefficient of 0.01 and is significant at the 1% level. LIAB has a coefficient of 0.005 and is significant

at the 5% level. NIL has a coefficient of -0.71 and is significant at the 1% level. PLANT has a coefficient of -0.19 and is significant at the 1% level. REC has a coefficient of 0.008 and is significant at the 1% level. TA has a coefficient of 0.01 and is significant at the 1% level. CPC_TA has a large coefficient of 14189.15 and is insignificant with a p-value of 0.83.

Regression 4:

I run a standard OLS regression with a linear term in CPC and the interaction term CPC_GDP which allows the effect of the change in stock price to depend on the macroeconomic environment (Results in Table 3). Following is the regression equation:

$$LLP = \alpha + \beta_1 CASH + \beta_2 CPC + \beta_3 DIV + \beta_4 GDP + \beta_5 GP + \beta_6 INT + \beta_7 INV + \beta_8 LIAB + \beta_9 NIL + \beta_{10} OI + \beta_{11} TA + \beta_{12} RET + \beta_{13} REC + \beta_{14} PLANT + \beta_{1}$$

Below is the regression result which includes Year Dummy variables that are shown in TABLE (3) of the appendix:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:11
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1780.008 | 1.54E+09 | -1.15E-06 | 1.0000 |
| CASH_? | 0.000609 | 0.003817 | 0.159532 | 0.8733 |
| REC_? | 0.008415 | 0.002758 | 3.051535 | 0.0023 |
| PLANT_? | -0.186258 | 0.027835 | -6.691590 | 0.0000 |
| INV_? | -0.011275 | 0.002674 | -4.216612 | 0.0000 |
| INT_? | 0.122049 | 0.009682 | 12.60591 | 0.0000 |
| TA_? | 0.010121 | 0.002698 | 3.750593 | 0.0002 |
| LIAB_? | 0.004800 | 0.001960 | 2.448330 | 0.0145 |
| RET_? | 0.174994 | 0.009326 | 18.76309 | 0.0000 |
| GP_? | -0.038591 | 0.001603 | -24.07806 | 0.0000 |
| OI_? | -0.016518 | 0.090895 | -0.181729 | 0.8558 |
| OIA_? | 0.073608 | 0.098303 | 0.748787 | 0.4541 |
| NIL_? | -0.710150 | 0.038514 | -18.43886 | 0.0000 |
| DIV_? | -2.037631 | 0.065959 | -30.89253 | 0.0000 |
| CPC_? | -228.8933 | 339.0039 | -0.675194 | 0.4997 |
| CPC_GDP_? | 7395757. | 13017271 | 0.568150 | 0.5700 |
| GDP | 0.032531 | 33230.82 | 9.79E-07 | 1.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.905664 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.902992 | S.D. dependent var | 2737.656 |
| S.E. of regression | 852.6712 | Akaike info criterion | 16.36259 |
| Sum squared resid | 8.22E+08 | Schwarz criterion | 16.50613 |
| Log likelihood | -9481.846 | Hannan-Quinn criter. | 16.41674 |
| F-statistic | 339.0141 | Durbin-Watson stat | 1.550002 |
| Prob(F-statistic) | 0.000000 | | |

**Regression 4**

The results show a high R-squared of 0.91. CPC has a very large coefficient of -228.89 but again is highly insignificant with a p-value of 0.50. DIV has a coefficient of -2.04 and is significant at the 1% level. GP has a coefficient of -0.04 and is significant at the 1% level which means that a 1 unit increase in profits reduces the Loan Loss Provisions by 4 percentage points. INT has a coefficient of 0.12 and is significant at the 1% level. INV has a coefficient of -0.01 and is significant at the 1% level. LIAB has a coefficient of 0.005 and is significant at the 5% level. LIAB has a small influence her on Loan Loss Provisions since a 1 unit increase in liabilities increases provisions by 0.5

percentage points. NIL has a coefficient of -0.71 and is significant at the 1% level. PLANT has a coefficient of -0.19 and is significant at the 1% level. REC has a coefficient of 0.008 and is significant at the 1% level. TA has a coefficient of 0.01 and is significant at the 1% level. CPC_GDP has a coefficient of 7395757 and is largely insignificant with a p-value of 0.57.

Regression 5:

I run a standard OLS regression with a linear term in CPC and the interaction terms CPC_GDP and CPC_TA (Results in Table 4). Below is the regression equation:

$$LLP = \alpha + \beta_1 CASH + \beta_2 CPC + \beta_3 DIV + \beta_4 GDP + \beta_5 GP + \beta_6 INT + \beta_7 INV + \beta_8 LIAB + \beta_9 NIL + \beta_{10} OI + \beta_{11} TA + \beta_{12} RET + \beta_{13} REC + \beta_{14} PLANT + \beta_{1}$$

Below is the regression result which includes Year Dummy variables that are shown in TABLE (4) of the appendix:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:12
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1792.436 | 1.53E+09 | -1.17E-06 | 1.0000 |
| CASH_? | 0.000609 | 0.003819 | 0.159611 | 0.8732 |
| REC_? | 0.008415 | 0.002759 | 3.050140 | 0.0023 |
| PLANT_? | -0.186269 | 0.027849 | -6.688536 | 0.0000 |
| INV_? | -0.011275 | 0.002675 | -4.214480 | 0.0000 |
| INT_? | 0.122048 | 0.009685 | 12.60114 | 0.0000 |
| TA_? | 0.010120 | 0.002700 | 3.748475 | 0.0002 |
| LIAB_? | 0.004800 | 0.001961 | 2.447405 | 0.0145 |
| RET_? | 0.174995 | 0.009331 | 18.75415 | 0.0000 |
| GP_? | -0.038591 | 0.001604 | -24.06646 | 0.0000 |
| OI_? | -0.016478 | 0.090947 | -0.181180 | 0.8563 |
| OIA_? | 0.073564 | 0.098359 | 0.747918 | 0.4547 |
| NIL_? | -0.710146 | 0.038534 | -18.42910 | 0.0000 |
| DIV_? | -2.037633 | 0.065987 | -30.87911 | 0.0000 |
| CPC_? | -226.0850 | 352.5042 | -0.641368 | 0.5214 |
| CPC_GDP_? | 7263897. | 13779736 | 0.527143 | 0.5982 |
| CPC_TA_? | 2037.374 | 70101.06 | 0.029063 | 0.9768 |
| GDP | 0.032800 | 32990.47 | 9.94E-07 | 1.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.905664 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.902907 | S.D. dependent var | 2737.656 |
| S.E. of regression | 853.0484 | Akaike info criterion | 16.36431 |
| Sum squared resid | 8.22E+08 | Schwarz criterion | 16.51220 |
| Log likelihood | -9481.845 | Hannan-Quinn criter. | 16.42010 |
| F-statistic | 328.4503 | Durbin-Watson stat | 1.550009 |
| Prob(F-statistic) | 0.000000 | | |

**Regression 5**

The regression has a large R-squared of 0.91. CPC again has a very large coefficient of -226.08 but is insignificant with a p-value of 0.52. DIV has a coefficient of -2.03 and is significant at the 1% level. GP has a coefficient of -0.04 and is significant at the 1% level, so a 1 unit increase in gross profits reduces loan loss provisions by 4 percentage points. INT has a coefficient of 0.12 and is significant at the 1% level. INV has a coefficient of -0.01 and is significant at the 1% level. LIAB has a coefficient of 0.004 and is significant at the 5% level. NIL has a coefficient of -0.71 and

is significant at the 1% level. PLANT has a coefficient of -0.19 and is significant at the 1% level. REC has a coefficient of 0.008 and is significant at the 1% level. TA has a coefficient of 0.01 and is significant at the 1% level. CPC_GDP has a very high coefficient of 7263897 but is insignificant with a p-value of 0.59. CPC_TA also has a high coefficient but is also insignificant with a p-value of 0.97.

Regression 6:

I run a fixed effects regression with a linear term in CPC and the interaction term CPC_TA (Results in Table 6). Below is the regression equation:

$$LLP = \alpha + \beta_1 CASH + \beta_2 CPC + \beta_3 DIV + \beta_4 GDP + \beta_5 GP + \beta_6 INT + \beta_7 INV + \beta_8 LIAB + \beta_9 NIL + \beta_{10} OI + \beta_{11} TA + \beta_{12} RET + \beta_{13} REC + \beta_{14} PLANT + \beta_{1}$$

Below is the regression result which includes Year Dummy variables and bank fixed effects that are shown in TABLE (6) of the appendix:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:10
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -350.0768 | 6.78E+08 | -5.17E-07 | 1.0000 |
| CASH_? | 0.015072 | 0.004310 | 3.496640 | 0.0005 |
| REC_? | 0.006948 | 0.002756 | 2.521325 | 0.0118 |
| PLANT_? | -0.119768 | 0.041516 | -2.884890 | 0.0040 |
| INV_? | -0.000927 | 0.003433 | -0.270092 | 0.7871 |
| INT_? | 0.093043 | 0.011368 | 8.184304 | 0.0000 |
| TA_? | 0.007843 | 0.003040 | 2.579752 | 0.0100 |
| LIAB_? | 0.006405 | 0.002180 | 2.937735 | 0.0034 |
| RET_? | 0.149780 | 0.011186 | 13.38982 | 0.0000 |
| GP_? | -0.039299 | 0.001932 | -20.33783 | 0.0000 |
| OI_? | 0.149960 | 0.119017 | 1.259988 | 0.2080 |
| OIA_? | -0.067992 | 0.123848 | -0.548995 | 0.5831 |
| NIL_? | -0.733387 | 0.037197 | -19.71639 | 0.0000 |
| DIV_? | -1.879957 | 0.066075 | -28.45167 | 0.0000 |
| CPC_? | -59.58331 | 69.03852 | -0.863044 | 0.3883 |
| CPC_TA_? | 14888.50 | 65004.30 | 0.229039 | 0.8189 |
| GDP | 0.000487 | 14604.97 | 3.34E-08 | 1.0000 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.924156 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.916226 | S.D. dependent var | 2737.656 |
| S.E. of regression | 792.3812 | Akaike info criterion | 16.27854 |
| Sum squared resid | 6.61E+08 | Schwarz criterion | 16.76136 |
| Log likelihood | -9354.970 | Hannan-Quinn criter. | 16.46069 |
| F-statistic | 116.5328 | Durbin-Watson stat | 1.617656 |
| Prob(F-statistic) | 0.000000 | | |

**Regression 6**

We have a strong R-squared of 0.92. CPC has a high coefficient of -59.58 but is insignificant with a p-value of 0.39. DIV has a coefficient of -1.87 and is statistically significant at the 1% level. GP has a coefficient of -0.04 and is significant at the 1% level. INT has a coefficient of 0.09 and is significant at the 1% level. INV has a coefficient of -0.0009 and is not significant with a p-value of 0.79 which is inconsistent with the other regressions. LIAB has a coefficient of 0.006 and is significant at the 1%

level. NIL has a coefficient of -0.73 and is significant at the 1% level. PLANT has a coefficient of -0.12 and is significant at the 1% level. REC has a coefficient of 0.007 and is significant at the 5% level. TA has a coefficient of 0.008 and is significant at the1% level. CPC_TA has a coefficient of 14888.50 and is insignificant with a p-value of 0.82.

Regression 7:

I run a fixed effects regression with a linear term in CPC and the interaction term CPC_GDP (Results in Table 7). Below is the regression equation:

$$LLP = \alpha + \beta_1 CASH + \beta_2 CPC + \beta_3 DIV + \beta_4 GDP + \beta_5 GP + \beta_6 INT + \beta_7 INV + \beta_8 LIAB + \beta_9 NIL + \beta_{10} OI + \beta_{11} TA + \beta_{12} RET + \beta_{13} REC + \beta_{14} PLANT + \beta_{15}$$

Below is the regression result which includes Year Dummy variables and bank fixed effects that are shown in TABLE (7) of the appendix:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:11
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -329.9633 | 6.78E+08 | -4.86E-07 | 1.0000 |
| CASH_? | 0.015070 | 0.004310 | 3.496270 | 0.0005 |
| REC_? | 0.006945 | 0.002755 | 2.520290 | 0.0119 |
| PLANT_? | -0.119690 | 0.041515 | -2.883065 | 0.0040 |
| INV_? | -0.000932 | 0.003433 | -0.271350 | 0.7862 |
| INT_? | 0.093025 | 0.011368 | 8.182724 | 0.0000 |
| TA_? | 0.007846 | 0.003040 | 2.580799 | 0.0100 |
| LIAB_? | 0.006402 | 0.002180 | 2.936523 | 0.0034 |
| RET_? | 0.149801 | 0.011186 | 13.39182 | 0.0000 |
| GP_? | -0.039295 | 0.001933 | -20.33233 | 0.0000 |
| OI_? | 0.149111 | 0.119031 | 1.252711 | 0.2106 |
| OIA_? | -0.066898 | 0.123893 | -0.539968 | 0.5893 |
| NIL_? | -0.733545 | 0.037198 | -19.71981 | 0.0000 |
| DIV_? | -1.880457 | 0.066149 | -28.42755 | 0.0000 |
| CPC_? | -123.7315 | 325.1314 | -0.380558 | 0.7036 |
| CPC_GDP_? | 2672135. | 12482735 | 0.214066 | 0.8305 |
| GDP | 1.12E-05 | 14617.13 | 7.67E-10 | 1.0000 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.924156 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.916225 | S.D. dependent var | 2737.656 |
| S.E. of regression | 792.3837 | Akaike info criterion | 16.27854 |
| Sum squared resid | 6.61E+08 | Schwarz criterion | 16.76137 |
| Log likelihood | -9354.974 | Hannan-Quinn criter. | 16.46070 |
| F-statistic | 116.5320 | Durbin-Watson stat | 1.617218 |
| Prob(F-statistic) | 0.000000 | | |

**Regression 7**

We have a strong R-squared of 0.93. CPC has a high coefficient of -123.73 but is insignificant with a p-value of 0.70. DIV has a coefficient of -1.88 and is statistically significant at the 1% level. GP has a coefficient of -0.04 and is significant at the 1% level. INT has a coefficient of 0.09 and is significant at the 1% level. INV has a coefficient of -0.0009 and is not significant with a p-value of 0.79 which is inconsistent with the other regressions. LIAB has a coefficient of 0.006 and is significant at the 1%

level. NIL has a coefficient of -0.73 and is significant at the 1% level. PLANT has a coefficient of -0.12 and is significant at the 1% level. REC has a coefficient of 0.007 and is significant at the 5% level. TA has a coefficient of 0.008 and is significant at the1% level. CPC_GDP has a coefficient of 2672135 and is insignificant with a p-value of 0.83.

Regression 8:

I run a fixed effects regression with a linear term in CPC and the interaction terms CPC_GDP and CPC_TA. (Results in Table 8)

$$LLP = \alpha + \beta_1 CASH + \beta_2 CPC + \beta_3 DIV + \beta_4 GDP + \beta_5 GP + \beta_6 INT + \beta_7 INV + \beta_8 LIAB + \beta_9 NIL + \beta_{10} OI + \beta_{11} TA + \beta_{12} RET + \beta_{13} REC + \beta_{14} PLANT + \beta_{15}$$

Below is the regression result which includes Year Dummy variables and bank fixed effects that are shown in TABLE (8) of the appendix:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:13
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -284.3064 | 6.83E+08 | -4.16E-07 | 1.0000 |
| CASH_? | 0.015072 | 0.004312 | 3.495053 | 0.0005 |
| REC_? | 0.006947 | 0.002757 | 2.519812 | 0.0119 |
| PLANT_? | -0.119741 | 0.041535 | -2.882884 | 0.0040 |
| INV_? | -0.000928 | 0.003435 | -0.270142 | 0.7871 |
| INT_? | 0.093034 | 0.011374 | 8.179684 | 0.0000 |
| TA_? | 0.007842 | 0.003042 | 2.578267 | 0.0101 |
| LIAB_? | 0.006406 | 0.002181 | 2.936687 | 0.0034 |
| RET_? | 0.149801 | 0.011193 | 13.38396 | 0.0000 |
| GP_? | -0.039294 | 0.001934 | -20.32256 | 0.0000 |
| OI_? | 0.149517 | 0.119110 | 1.255284 | 0.2097 |
| OIA_? | -0.067358 | 0.123980 | -0.543295 | 0.5870 |
| NIL_? | -0.733480 | 0.037220 | -19.70661 | 0.0000 |
| DIV_? | -1.880416 | 0.066181 | -28.41340 | 0.0000 |
| CPC_? | -108.2268 | 338.0436 | -0.320156 | 0.7489 |
| CPC_GDP_? | 1942963. | 13217302 | 0.147002 | 0.8832 |
| CPC_TA_? | 11565.29 | 68854.09 | 0.167968 | 0.8666 |
| GDP | -0.000968 | 14719.72 | -6.57E-08 | 1.0000 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.924158 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.916148 | S.D. dependent var | 2737.656 |
| S.E. of regression | 792.7499 | Akaike info criterion | 16.28024 |
| Sum squared resid | 6.61E+08 | Schwarz criterion | 16.76741 |
| Log likelihood | -9354.958 | Hannan-Quinn criter. | 16.46403 |
| F-statistic | 115.3758 | Durbin-Watson stat | 1.617312 |
| Prob(F-statistic) | 0.000000 | | |

**Regression 8**

We have a strong R-squared of 0.92. CPC has a high coefficient of -108.22 but is insignificant with a p-value of 0.75. DIV has a coefficient of -1.88 and is statistically significant at the 1% level. GP has a coefficient of -0.04 and is significant at the 1% level. INT has a coefficient of 0.09 and is significant at the 1% level. INV has a coefficient of -0.0009 and is not significant with a p-value of 0.79 which is inconsistent

with the other regressions. LIAB has a coefficient of 0.006 and is significant at the 1% level. NIL has a coefficient of -0.73 and is significant at the 1% level. PLANT has a coefficient of -0.12 and is significant at the 1% level. REC has a coefficient of 0.007 and is significant at the 1% level. TA has a coefficient of 0.008 and is significant at the 5% level. CPC_GDP has a coefficient of 1942963 and is insignificant with a p-value of 0.88. CPC_TA has a coefficient of 11565.29 but is insignificant with a p-value of 0.87.

The results regarding CPC and the interaction terms are summarized in the table below:

| Regression | Variable | Coefficient | P-value | Significance level | R-squared |
|---|---|---|---|---|---|
| 1 | CPC | -40.43 | 0.56 | Insignificant | 0.91 |
| 2 | CPC | -55.61 | 0.41 | Insignificant | 0.92 |
| 3 | CPC | -44.28 | 0.54 | Insignificant | 0.91 |
| 3 | CPC_TA | 14189.15 | 0.21 | Insignificant | 0.91 |
| 4 | CPC | -228.89 | 0.50 | Insignificant | 0.91 |
| 4 | CPC_GDP | 7395757 | 0.57 | Insignificant | 0.91 |
| 5 | CPC | -226.08 | -0.52 | Insignificant | 0.91 |
| 5 | CPC_GDP | 7263897 | 0.60 | Insignificant | 0.91 |
| 5 | CPC_TA | 2037.37 | 0.97 | Insignificant | 0.91 |
| 6 | CPC | -59.6 | 0.38 | Insignificant | 0.92 |
| 6 | CPC_TA | 14888.5 | 0.81 | Insignificant | 0.92 |
| 7 | CPC | -123.73 | 0.70 | Insignificant | 0.92 |
| 7 | CPC_GDP | 2672135 | 0.83 | Insignificant | 0.92 |
| 8 | CPC | -108.23 | 0.74 | Insignificant | 0.92 |
| 8 | CPC_GDP | 1942963 | 0.88 | Insignificant | 0.92 |
| 8 | CPC_TA | 11565 | 0.87 | Insignificant | 0.92 |

**Summary Table 2**

Although the coefficients are high, they all have a very high p-value which makes them insignificant. Therefore the change in stock price does not seem to have an effect on the loan loss provisions. I did however find results that are consistent with the literature related to the subject especially when it comes to variables like REC, GP and NIL. My results are those of a more recent time period (1993-2009).

As for CPC I can conclude from this model that it is not a motivator for income smoothing through loan loss provisions. However, it could be a motivator for earnings management through another tool, and the discretion in setting loan loss provisions is probably motivated by several managerial goals, income smoothing being only one of them.

Robustness checks:

Finally, I run a regression with the same original variables only this time using random effects. Results are show in the table below:

| llp | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| cash | .0006095 | .0038169 | 0.16 | 0.873 | -.0068714 | .0080904 |
| rec | .0084153 | .0027576 | 3.05 | 0.002 | .0030106 | .0138201 |
| plant | -.1862689 | .0278371 | -6.69 | 0.000 | -.2408286 | -.1317092 |
| inv | -.0112752 | .0026741 | -4.22 | 0.000 | -.0165163 | -.0060342 |
| int | .1220483 | .0096814 | 12.61 | 0.000 | .1030731 | .1410236 |
| ta | .0101204 | .0026985 | 3.75 | 0.000 | .0048314 | .0154094 |
| liab | .0048002 | .0019605 | 2.45 | 0.014 | .0009577 | .0086426 |
| ret | .1749952 | .0093266 | 18.76 | 0.000 | .1567153 | .193275 |
| gp | -.0385906 | .0016028 | -24.08 | 0.000 | -.041732 | -.0354493 |
| oi | -.0164776 | .0909056 | -0.18 | 0.856 | -.1946493 | .161694 |
| oia | .0735641 | .0983145 | 0.75 | 0.454 | -.1191287 | .2662569 |
| nil | -.7101462 | .0385142 | -18.44 | 0.000 | -.7856327 | -.6346597 |
| div | -2.037633 | .0659586 | -30.89 | 0.000 | -2.16691 | -1.908357 |
| cpc | -226.085 | 352.479 | -0.64 | 0.521 | -916.9312 | 464.7612 |
| cpc_ta | 2037.373 | 70075.3 | 0.03 | 0.977 | -135307.7 | 139382.4 |
| cpc_gdp | .004044 | .0074704 | 0.54 | 0.588 | -.0105978 | .0186858 |
| gdp | 7263898 | 1.38e+07 | 0.53 | 0.598 | -1.98e+07 | 3.43e+07 |
| _Ivar1_1994 | -39.3754 | 169.0236 | -0.23 | 0.816 | -370.6555 | 291.9047 |
| _Ivar1_1995 | -74.6 | 169.0221 | -0.44 | 0.659 | -405.8773 | 256.6773 |
| _Ivar1_1996 | -57.36302 | 155.7039 | -0.37 | 0.713 | -362.5371 | 247.811 |
| _Ivar1_1997 | -80.13863 | 153.0671 | -0.52 | 0.601 | -380.1446 | 219.8673 |
| _Ivar1_1998 | -112.5276 | 144.048 | -0.78 | 0.435 | -394.8564 | 169.8013 |
| _Ivar1_1999 | -52.65052 | 137.3118 | -0.38 | 0.701 | -321.7767 | 216.4757 |
| _Ivar1_2000 | -123.2361 | 132.2893 | -0.93 | 0.352 | -382.5183 | 136.0462 |
| _Ivar1_2001 | -8.097121 | 130.4998 | -0.06 | 0.951 | -263.8721 | 247.6778 |
| _Ivar1_2002 | -91.98866 | 126.7396 | -0.73 | 0.468 | -340.3937 | 156.4163 |
| _Ivar1_2003 | -78.97526 | 128.5222 | -0.61 | 0.539 | -330.8741 | 172.9236 |
| _Ivar1_2004 | -397.9096 | 126.0502 | -3.16 | 0.002 | -644.9634 | -150.8558 |
| _Ivar1_2005 | -201.5916 | 128.776 | -1.57 | 0.117 | -453.988 | 50.80482 |
| _Ivar1_2006 | -250.8892 | 135.4955 | -1.85 | 0.064 | -516.4554 | 14.67708 |
| _Ivar1_2007 | -378.3104 | 138.7977 | -2.73 | 0.006 | -650.3489 | -106.2719 |
| _Ivar1_2009 | 87.80587 | 139.9253 | 0.63 | 0.530 | -186.4426 | 362.0544 |
| _cons | -79.6724 | 296.6069 | -0.27 | 0.788 | -661.0112 | 501.6664 |
| sigma_u | 0 | | | | | |
| sigma_e | 792.37305 | | | | | |
| rho | 0 | (fraction of variance due to u_i) | | | | |

**Regression 9**

A Hausman test clearly shows that a fixed effects regression is more suitable for this model. When results differ greatly between the fixed effects regression and the random effects, we go for the safer choice which is the fixed effects.

# CHAPTER IV

# CONCLUSION

My model shows that income smoothing is still being practiced through the use of loan loss provisions. I note the clear relation between my dependent variable and Net Income and Gross Profit and Investment and Advances Other. The model used fails to show a strong relationship between loan loss provisions and the change in stock price. However, this does not mean that the stock price is not a motivator for smoothing; it could be that it is a motivator through another variable. The strength of the model could also be limited by the size of the sample which can be considered as relatively small. The use of the largest banks by market capitalization in the sample could bring some limitations to the model since they are the ones that are more closely watched by regulators and investors. This will cause these banks to be less prone to income smoothing. I could have also used a sample containing banks from different countries to account for the strictness of the regulation, something which other papers have clearly shown to be a factor in earning manipulation. The limitation of the data could also be considered as a strong point since it allows us to hold everything constant (banking regulations, accounting practices…) within the sample used. A possible extension to the econometric model could include using the variance of the stock price over three years as a measure of volatility rather than the change in stock price as I did in my empirical analysis. This may be a more direct test of the motivation to smooth income for the purposes of reducing volatility to better attract investors, which was one of the incentives for smoothing we had discussed in the review of the theoretical literature.

This paper uses loan loss provisions as the main tool for income smoothing. However, provisions are an accounting variable particular to the banking industry and there are many other tools that can be used for the same purpose in the banking as well as other industries as shown in the literature review. I study income smoothing from a signaling point of view where firms use accounting manipulations in order to show a certain image to the market. Income smoothing can be practiced for other reasons as stated by Trueman and Titman, Dye and Fudenberg and Tirole who advocate the idea of earnings manipulations by managers for their own personal motivations regarding job security, end of year bonuses and compensation. The data used in this paper remains limited to the banking industry and fails to test other hypotheses such as information asymmetry and real smoothing versus artificial smoothing (mentioned in Eckel (1981)).

Bank regulators could use the research on income smoothing to implement policies to prevent it especially when it comes to provisions for bad loans thus reducing the problem of asymmetric information.

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# APPENDIX

Table 1:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:09
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1867.831 | 1.54E+09 | -1.21E-06 | 1.0000 |
| CASH_? | 0.000617 | 0.003816 | 0.161778 | 0.8715 |
| REC_? | 0.008433 | 0.002756 | 3.059616 | 0.0023 |
| PLANT_? | -0.186395 | 0.027825 | -6.698811 | 0.0000 |
| INV_? | -0.011268 | 0.002673 | -4.215197 | 0.0000 |
| INT_? | 0.122143 | 0.009677 | 12.62211 | 0.0000 |
| TA_? | 0.010114 | 0.002698 | 3.749317 | 0.0002 |
| LIAB_? | 0.004790 | 0.001960 | 2.444282 | 0.0147 |
| RET_? | 0.174934 | 0.009323 | 18.76351 | 0.0000 |
| GP_? | -0.038592 | 0.001602 | -24.08615 | 0.0000 |
| OI_? | -0.015609 | 0.090858 | -0.171799 | 0.8636 |
| OIA_? | 0.071938 | 0.098233 | 0.732326 | 0.4641 |
| NIL_? | -0.709862 | 0.038496 | -18.43971 | 0.0000 |
| DIV_? | -2.036045 | 0.065880 | -30.90544 | 0.0000 |
| CPC_? | -40.43321 | 69.98150 | -0.577770 | 0.5635 |
| GDP | 0.034580 | 33216.15 | 1.04E-06 | 1.0000 |
| DV1993_? | 1014.453 | 7.00E+08 | 1.45E-06 | 1.0000 |
| DV1994_? | 932.4778 | 6.59E+08 | 1.42E-06 | 1.0000 |
| DV1995_? | 896.2828 | 6.26E+08 | 1.43E-06 | 1.0000 |
| DV1996_? | 864.7074 | 5.86E+08 | 1.48E-06 | 1.0000 |
| DV1997_? | 800.2595 | 5.36E+08 | 1.49E-06 | 1.0000 |
| DV1998_? | 701.6476 | 4.89E+08 | 1.44E-06 | 1.0000 |
| DV1999_? | 712.3058 | 4.34E+08 | 1.64E-06 | 1.0000 |
| DV2000_? | 597.0288 | 3.76E+08 | 1.59E-06 | 1.0000 |
| DV2001_? | 685.5840 | 3.49E+08 | 1.96E-06 | 1.0000 |
| DV2002_? | 572.4717 | 3.19E+08 | 1.79E-06 | 1.0000 |
| DV2003_? | 544.5073 | 2.73E+08 | 2.00E-06 | 1.0000 |
| DV2004_? | 159.3609 | 2.03E+08 | 7.87E-07 | 1.0000 |
| DV2005_? | 289.4052 | 1.29E+08 | 2.25E-06 | 1.0000 |
| DV2006_? | 172.3811 | 57895756 | 2.98E-06 | 1.0000 |
| DV2009_? | 484.0672 | 21524068 | 2.25E-05 | 1.0000 |
| DV2008_? | 358.6206 | 18767127 | 1.91E-05 | 1.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.905637 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.903051 | S.D. dependent var | 2737.656 |
| S.E. of regression | 852.4159 | Akaike info criterion | 16.36116 |
| Sum squared resid | 8.22E+08 | Schwarz criterion | 16.50035 |
| Log likelihood | -9482.012 | Hannan-Quinn criter. | 16.41367 |
| F-statistic | 350.1492 | Durbin-Watson stat | 1.550939 |
| Prob(F-statistic) | 0.000000 | | |

Table 2:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:10
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1782.438 | 1.55E+09 | -1.15E-06 | 1.0000 |
| CASH_? | 0.000620 | 0.003817 | 0.162508 | 0.8709 |
| REC_? | 0.008435 | 0.002758 | 3.058664 | 0.0023 |
| PLANT_? | -0.186450 | 0.027839 | -6.697546 | 0.0000 |
| INV_? | -0.011268 | 0.002674 | -4.213208 | 0.0000 |
| INT_? | 0.122127 | 0.009682 | 12.61424 | 0.0000 |
| TA_? | 0.010112 | 0.002699 | 3.746715 | 0.0002 |
| LIAB_? | 0.004793 | 0.001961 | 2.444645 | 0.0147 |
| RET_? | 0.174951 | 0.009327 | 18.75736 | 0.0000 |
| GP_? | -0.038591 | 0.001603 | -24.07441 | 0.0000 |
| OI_? | -0.015440 | 0.090895 | -0.169867 | 0.8651 |
| OIA_? | 0.071842 | 0.098272 | 0.731055 | 0.4649 |
| NIL_? | -0.709871 | 0.038516 | -18.43052 | 0.0000 |
| DIV_? | -2.036259 | 0.065915 | -30.89227 | 0.0000 |
| CPC_? | -44.27570 | 72.25695 | -0.612753 | 0.5402 |
| CPC_TA_? | 14189.15 | 66180.69 | 0.214400 | 0.8303 |
| GDP | 0.032728 | 33459.64 | 9.78E-07 | 1.0000 |
| DV1993_? | 978.3911 | 7.05E+08 | 1.39E-06 | 1.0000 |
| DV1994_? | 896.5456 | 6.63E+08 | 1.35E-06 | 1.0000 |
| DV1995_? | 860.7682 | 6.31E+08 | 1.36E-06 | 1.0000 |
| DV1996_? | 831.2269 | 5.90E+08 | 1.41E-06 | 1.0000 |
| DV1997_? | 769.9678 | 5.40E+08 | 1.43E-06 | 1.0000 |
| DV1998_? | 675.0087 | 4.92E+08 | 1.37E-06 | 1.0000 |
| DV1999_? | 688.4387 | 4.37E+08 | 1.57E-06 | 1.0000 |
| DV2000_? | 576.4090 | 3.79E+08 | 1.52E-06 | 1.0000 |
| DV2001_? | 666.4306 | 3.52E+08 | 1.90E-06 | 1.0000 |
| DV2002_? | 554.9641 | 3.22E+08 | 1.73E-06 | 1.0000 |
| DV2003_? | 530.2130 | 2.75E+08 | 1.93E-06 | 1.0000 |
| DV2004_? | 148.6394 | 2.04E+08 | 7.29E-07 | 1.0000 |
| DV2005_? | 282.6041 | 1.30E+08 | 2.18E-06 | 1.0000 |
| DV2006_? | 169.8507 | 58320150 | 2.91E-06 | 1.0000 |
| DV2009_? | 483.0994 | 21681846 | 2.23E-05 | 1.0000 |
| DV2008_? | 359.7288 | 18904696 | 1.90E-05 | 1.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.905641 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.902969 | S.D. dependent var | 2737.656 |
| S.E. of regression | 852.7757 | Akaike info criterion | 16.36283 |
| Sum squared resid | 8.22E+08 | Schwarz criterion | 16.50638 |
| Log likelihood | -9481.988 | Hannan-Quinn criter. | 16.41699 |
| F-statistic | 338.9224 | Durbin-Watson stat | 1.550908 |
| Prob(F-statistic) | 0.000000 | | |

Table 3:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:11
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1780.008 | 1.54E+09 | -1.15E-06 | 1.0000 |
| CASH_? | 0.000609 | 0.003817 | 0.159532 | 0.8733 |
| REC_? | 0.008415 | 0.002758 | 3.051535 | 0.0023 |
| PLANT_? | -0.186258 | 0.027835 | -6.691590 | 0.0000 |
| INV_? | -0.011275 | 0.002674 | -4.216612 | 0.0000 |
| INT_? | 0.122049 | 0.009682 | 12.60591 | 0.0000 |
| TA_? | 0.010121 | 0.002698 | 3.750593 | 0.0002 |
| LIAB_? | 0.004800 | 0.001960 | 2.448330 | 0.0145 |
| RET_? | 0.174994 | 0.009326 | 18.76309 | 0.0000 |
| GP_? | -0.038591 | 0.001603 | -24.07806 | 0.0000 |
| OI_? | -0.016518 | 0.090895 | -0.181729 | 0.8558 |
| OIA_? | 0.073608 | 0.098303 | 0.748787 | 0.4541 |
| NIL_? | -0.710150 | 0.038514 | -18.43886 | 0.0000 |
| DIV_? | -2.037631 | 0.065959 | -30.89253 | 0.0000 |
| CPC_? | -228.8933 | 339.0039 | -0.675194 | 0.4997 |
| CPC_GDP_? | 7395757. | 13017271 | 0.568150 | 0.5700 |
| GDP | 0.032531 | 33230.82 | 9.79E-07 | 1.0000 |
| DV1993_? | 978.4928 | 7.00E+08 | 1.40E-06 | 1.0000 |
| DV1994_? | 903.8795 | 6.59E+08 | 1.37E-06 | 1.0000 |
| DV1995_? | 840.3874 | 6.26E+08 | 1.34E-06 | 1.0000 |
| DV1996_? | 823.3142 | 5.86E+08 | 1.40E-06 | 1.0000 |
| DV1997_? | 757.3851 | 5.36E+08 | 1.41E-06 | 1.0000 |
| DV1998_? | 685.2414 | 4.89E+08 | 1.40E-06 | 1.0000 |
| DV1999_? | 698.2788 | 4.34E+08 | 1.61E-06 | 1.0000 |
| DV2000_? | 577.7098 | 3.76E+08 | 1.54E-06 | 1.0000 |
| DV2001_? | 669.6113 | 3.49E+08 | 1.92E-06 | 1.0000 |
| DV2002_? | 560.1447 | 3.19E+08 | 1.75E-06 | 1.0000 |
| DV2003_? | 533.1819 | 2.73E+08 | 1.95E-06 | 1.0000 |
| DV2004_? | 154.1347 | 2.03E+08 | 7.61E-07 | 1.0000 |
| DV2005_? | 287.0677 | 1.29E+08 | 2.23E-06 | 1.0000 |
| DV2006_? | 177.1224 | 57921325 | 3.06E-06 | 1.0000 |
| DV2009_? | 484.5753 | 21533573 | 2.25E-05 | 1.0000 |
| DV2008_? | 362.2503 | 18775415 | 1.93E-05 | 1.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.905664 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.902992 | S.D. dependent var | 2737.656 |
| S.E. of regression | 852.6712 | Akaike info criterion | 16.36259 |
| Sum squared resid | 8.22E+08 | Schwarz criterion | 16.50613 |
| Log likelihood | -9481.846 | Hannan-Quinn criter. | 16.41674 |
| F-statistic | 339.0141 | Durbin-Watson stat | 1.550002 |
| Prob(F-statistic) | 0.000000 | | |

Table 4:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:12
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1792.436 | 1.53E+09 | -1.17E-06 | 1.0000 |
| CASH_? | 0.000609 | 0.003819 | 0.159611 | 0.8732 |
| REC_? | 0.008415 | 0.002759 | 3.050140 | 0.0023 |
| PLANT_? | -0.186269 | 0.027849 | -6.688536 | 0.0000 |
| INV_? | -0.011275 | 0.002675 | -4.214480 | 0.0000 |
| INT_? | 0.122048 | 0.009685 | 12.60114 | 0.0000 |
| TA_? | 0.010120 | 0.002700 | 3.748475 | 0.0002 |
| LIAB_? | 0.004800 | 0.001961 | 2.447405 | 0.0145 |
| RET_? | 0.174995 | 0.009331 | 18.75415 | 0.0000 |
| GP_? | -0.038591 | 0.001604 | -24.06646 | 0.0000 |
| OI_? | -0.016478 | 0.090947 | -0.181180 | 0.8563 |
| OIA_? | 0.073564 | 0.098359 | 0.747918 | 0.4547 |
| NIL_? | -0.710146 | 0.038534 | -18.42910 | 0.0000 |
| DIV_? | -2.037633 | 0.065987 | -30.87911 | 0.0000 |
| CPC_? | -226.0850 | 352.5042 | -0.641368 | 0.5214 |
| CPC_GDP_? | 7263897. | 13779736 | 0.527143 | 0.5982 |
| CPC_TA_? | 2037.374 | 70101.06 | 0.029063 | 0.9768 |
| GDP | 0.032800 | 32990.47 | 9.94E-07 | 1.0000 |
| DV1993_? | 984.4591 | 6.95E+08 | 1.42E-06 | 1.0000 |
| DV1994_? | 909.1099 | 6.54E+08 | 1.39E-06 | 1.0000 |
| DV1995_? | 845.6756 | 6.22E+08 | 1.36E-06 | 1.0000 |
| DV1996_? | 828.0315 | 5.82E+08 | 1.42E-06 | 1.0000 |
| DV1997_? | 761.8343 | 5.32E+08 | 1.43E-06 | 1.0000 |
| DV1998_? | 689.0431 | 4.86E+08 | 1.42E-06 | 1.0000 |
| DV1999_? | 701.6164 | 4.31E+08 | 1.63E-06 | 1.0000 |
| DV2000_? | 580.7366 | 3.74E+08 | 1.55E-06 | 1.0000 |
| DV2001_? | 672.3818 | 3.47E+08 | 1.94E-06 | 1.0000 |
| DV2002_? | 562.6386 | 3.17E+08 | 1.77E-06 | 1.0000 |
| DV2003_? | 535.4223 | 2.71E+08 | 1.98E-06 | 1.0000 |
| DV2004_? | 155.7264 | 2.01E+08 | 7.74E-07 | 1.0000 |
| DV2005_? | 288.0622 | 1.28E+08 | 2.26E-06 | 1.0000 |
| DV2006_? | 177.5430 | 57502390 | 3.09E-06 | 1.0000 |
| DV2009_? | 484.7502 | 21377825 | 2.27E-05 | 1.0000 |
| DV2008_? | 362.0632 | 18639616 | 1.94E-05 | 1.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.905664 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.902907 | S.D. dependent var | 2737.656 |
| S.E. of regression | 853.0484 | Akaike info criterion | 16.36431 |
| Sum squared resid | 8.22E+08 | Schwarz criterion | 16.51220 |
| Log likelihood | -9481.845 | Hannan-Quinn criter. | 16.42010 |
| F-statistic | 328.4503 | Durbin-Watson stat | 1.550009 |
| Prob(F-statistic) | 0.000000 | | |

Table 5:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:09
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -218.9155 | 6.83E+08 | -3.20E-07 | 1.0000 |
| CASH_? | 0.015068 | 0.004308 | 3.497588 | 0.0005 |
| REC_? | 0.006945 | 0.002754 | 2.521430 | 0.0118 |
| PLANT_? | -0.119710 | 0.041496 | -2.884848 | 0.0040 |
| INV_? | -0.000932 | 0.003432 | -0.271678 | 0.7859 |
| INT_? | 0.093034 | 0.011363 | 8.187312 | 0.0000 |
| TA_? | 0.007849 | 0.003039 | 2.582913 | 0.0099 |
| LIAB_? | 0.006400 | 0.002179 | 2.936674 | 0.0034 |
| RET_? | 0.149768 | 0.011180 | 13.39561 | 0.0000 |
| GP_? | -0.039303 | 0.001931 | -20.34963 | 0.0000 |
| OI_? | 0.149615 | 0.118953 | 1.257771 | 0.2088 |
| OIA_? | -0.067672 | 0.123783 | -0.546699 | 0.5847 |
| NIL_? | -0.733429 | 0.037179 | -19.72711 | 0.0000 |
| DIV_? | -1.879766 | 0.066040 | -28.46391 | 0.0000 |
| CPC_? | -55.61428 | 66.78755 | -0.832704 | 0.4052 |
| GDP | -0.002326 | 14723.48 | -1.58E-07 | 1.0000 |
| DV1993_? | 204.1044 | 3.10E+08 | 6.58E-07 | 1.0000 |
| DV1994_? | 170.5489 | 2.92E+08 | 5.84E-07 | 1.0000 |
| DV1995_? | 172.5084 | 2.77E+08 | 6.22E-07 | 1.0000 |
| DV1996_? | 168.7682 | 2.60E+08 | 6.50E-07 | 1.0000 |
| DV1997_? | 159.0775 | 2.37E+08 | 6.70E-07 | 1.0000 |
| DV1998_? | 105.7498 | 2.17E+08 | 4.88E-07 | 1.0000 |
| DV1999_? | 193.2401 | 1.92E+08 | 1.00E-06 | 1.0000 |
| DV2000_? | 177.5993 | 1.67E+08 | 1.07E-06 | 1.0000 |
| DV2001_? | 289.9631 | 1.55E+08 | 1.87E-06 | 1.0000 |
| DV2002_? | 194.8083 | 1.41E+08 | 1.38E-06 | 1.0000 |
| DV2003_? | 213.5390 | 1.21E+08 | 1.77E-06 | 1.0000 |
| DV2004_? | -77.87552 | 89769029 | -8.68E-07 | 1.0000 |
| DV2005_? | 90.33079 | 57009296 | 1.58E-06 | 1.0000 |
| DV2006_? | 115.3655 | 25663017 | 4.50E-06 | 1.0000 |
| DV2009_? | 396.8747 | 9540812. | 4.16E-05 | 1.0000 |
| DV2008_? | 279.1290 | 8318764. | 3.36E-05 | 1.0000 |
| Fixed Effects (Cross) | | | | |
| 01--C | -73.28932 | | | |
| 02--C | 167.4586 | | | |
| 03--C | -57.39416 | | | |
| 04--C | -278.1953 | | | |
| 05--C | -1251.235 | | | |
| 06--C | 478.8376 | | | |
| 07--C | 78.49187 | | | |
| 08--C | 92.18590 | | | |
| 09--C | 91.86921 | | | |
| 10--C | 162.7519 | | | |
| 11--C | 128.0554 | | | |
| 12--C | 16.84304 | | | |

| | |
|---|---|
| 13--C | 142.3679 |
| 14--C | -1527.396 |
| 15--C | 357.0400 |
| 16--C | -84.43405 |
| 17--C | -10.74846 |
| 18--C | -279.2128 |
| 19--C | -216.2078 |
| 20--C | 200.8779 |
| 21--C | 1167.841 |
| 22--C | -65.70319 |
| 23--C | -1433.537 |
| 24--C | -540.3564 |
| 25--C | 309.5257 |
| 26--C | 923.6434 |
| 27--C | 22.78495 |
| 28--C | 946.1480 |
| 29--C | -29.89837 |
| 30--C | -464.5773 |
| 31--C | 163.2376 |
| 32--C | 186.5070 |
| 33--C | 157.8099 |
| 34--C | 131.5281 |
| 35--C | 217.0004 |
| 36--C | 109.0507 |
| 37--C | 99.06846 |
| 38--C | 90.08834 |
| 39--C | 112.7461 |
| 40--C | 110.2054 |
| 41--C | 111.1182 |
| 42--C | 116.0776 |
| 43--C | 105.0585 |
| 44--C | 176.8992 |
| 45--C | 142.1871 |
| 46--C | 92.61170 |
| 47--C | 112.7781 |
| 48--C | 199.2163 |
| 49--C | 98.86345 |
| 50--C | 110.0504 |
| 51--C | 110.6625 |
| 52--C | 178.5757 |
| 53--C | 123.3812 |
| 54--C | 134.1697 |
| 55--C | 203.9232 |
| 56--C | 147.5735 |
| 57--C | 110.4935 |
| 58--C | 168.5391 |
| 59--C | -1854.152 |
| 60--C | 117.3597 |
| 61--C | 161.5027 |
| 62--C | 140.2366 |
| 63--C | 131.5499 |
| 64--C | 167.0328 |
| 65--C | 135.1830 |
| 66--C | 108.3553 |
| 67--C | 108.7608 |
| 68--C | 145.5116 |
| 69--C | 127.1424 |
| 70--C | 145.7464 |
| 71--C | 123.3056 |

| | |
|---|---|
| 72--C | 115.0952 |
| 73--C | -5790.790 |
| 74--C | 502.6391 |
| 75--C | 100.0046 |
| 76--C | 156.4409 |
| 77--C | 148.4196 |
| 78--C | 136.1445 |
| 79--C | -276.0886 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.924152 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.916301 | S.D. dependent var | 2737.656 |
| S.E. of regression | 792.0246 | Akaike info criterion | 16.27687 |
| Sum squared resid | 6.61E+08 | Schwarz criterion | 16.75534 |
| Log likelihood | -9354.999 | Hannan-Quinn criter. | 16.45738 |
| F-statistic | 117.7074 | Durbin-Watson stat | 1.617687 |
| Prob(F-statistic) | 0.000000 | | |

Table 6:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:10
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -350.0768 | 6.78E+08 | -5.17E-07 | 1.0000 |
| CASH_? | 0.015072 | 0.004310 | 3.496640 | 0.0005 |
| REC_? | 0.006948 | 0.002756 | 2.521325 | 0.0118 |
| PLANT_? | -0.119768 | 0.041516 | -2.884890 | 0.0040 |
| INV_? | -0.000927 | 0.003433 | -0.270092 | 0.7871 |
| INT_? | 0.093043 | 0.011368 | 8.184304 | 0.0000 |
| TA_? | 0.007843 | 0.003040 | 2.579752 | 0.0100 |
| LIAB_? | 0.006405 | 0.002180 | 2.937735 | 0.0034 |
| RET_? | 0.149780 | 0.011186 | 13.38982 | 0.0000 |
| GP_? | -0.039299 | 0.001932 | -20.33783 | 0.0000 |
| OI_? | 0.149960 | 0.119017 | 1.259988 | 0.2080 |
| OIA_? | -0.067992 | 0.123848 | -0.548995 | 0.5831 |
| NIL_? | -0.733387 | 0.037197 | -19.71639 | 0.0000 |
| DIV_? | -1.879957 | 0.066075 | -28.45167 | 0.0000 |
| CPC_? | -59.58331 | 69.03852 | -0.863044 | 0.3883 |
| CPC_TA_? | 14888.50 | 65004.30 | 0.229039 | 0.8189 |
| GDP | 0.000487 | 14604.97 | 3.34E-08 | 1.0000 |
| DV1993_? | 266.4241 | 3.08E+08 | 8.65E-07 | 1.0000 |
| DV1994_? | 227.3005 | 2.90E+08 | 7.85E-07 | 1.0000 |
| DV1995_? | 225.0978 | 2.75E+08 | 8.18E-07 | 1.0000 |
| DV1996_? | 217.7102 | 2.58E+08 | 8.45E-07 | 1.0000 |
| DV1997_? | 204.1702 | 2.35E+08 | 8.67E-07 | 1.0000 |
| DV1998_? | 148.0261 | 2.15E+08 | 6.89E-07 | 1.0000 |
| DV1999_? | 230.6052 | 1.91E+08 | 1.21E-06 | 1.0000 |
| DV2000_? | 209.8152 | 1.65E+08 | 1.27E-06 | 1.0000 |
| DV2001_? | 319.8327 | 1.53E+08 | 2.08E-06 | 1.0000 |
| DV2002_? | 222.1604 | 1.40E+08 | 1.58E-06 | 1.0000 |
| DV2003_? | 237.5812 | 1.20E+08 | 1.98E-06 | 1.0000 |
| DV2004_? | -60.11654 | 89046481 | -6.75E-07 | 1.0000 |
| DV2005_? | 101.6241 | 56550431 | 1.80E-06 | 1.0000 |
| DV2006_? | 121.0022 | 25456457 | 4.75E-06 | 1.0000 |
| DV2009_? | 398.9783 | 9464018. | 4.22E-05 | 1.0000 |
| DV2008_? | 277.6229 | 8251806. | 3.36E-05 | 1.0000 |
| Fixed Effects (Cross) | | | | |
| 01--C | -72.80839 | | | |
| 02--C | 167.3063 | | | |
| 03--C | -57.12338 | | | |
| 04--C | -277.7638 | | | |
| 05--C | -1251.280 | | | |
| 06--C | 478.6976 | | | |
| 07--C | 78.76415 | | | |
| 08--C | 92.52915 | | | |
| 09--C | 92.14972 | | | |
| 10--C | 163.0942 | | | |
| 11--C | 128.2855 | | | |
| 12--C | 17.33228 | | | |
| 13--C | 142.4618 | | | |

| | |
|---|---|
| 14--C | -1526.890 |
| 15--C | 356.8888 |
| 16--C | -84.45897 |
| 17--C | -11.12748 |
| 18--C | -278.8229 |
| 19--C | -215.7995 |
| 20--C | 200.6927 |
| 21--C | 1167.715 |
| 22--C | -65.71323 |
| 23--C | -1433.271 |
| 24--C | -540.1493 |
| 25--C | 309.6895 |
| 26--C | 923.8865 |
| 27--C | 22.80721 |
| 28--C | 946.1837 |
| 29--C | -29.67730 |
| 30--C | -464.1624 |
| 31--C | 164.7998 |
| 32--C | 186.5210 |
| 33--C | 157.8635 |
| 34--C | 131.7299 |
| 35--C | 216.9771 |
| 36--C | 108.6595 |
| 37--C | 99.06522 |
| 38--C | 90.05589 |
| 39--C | 112.3057 |
| 40--C | 110.1483 |
| 41--C | 111.2864 |
| 42--C | 116.2827 |
| 43--C | 105.2303 |
| 44--C | 177.0240 |
| 45--C | 142.0493 |
| 46--C | 92.10783 |
| 47--C | 111.8964 |
| 48--C | 199.5286 |
| 49--C | 99.01064 |
| 50--C | 109.7221 |
| 51--C | 110.8308 |
| 52--C | 178.3383 |
| 53--C | 123.5239 |
| 54--C | 133.9934 |
| 55--C | 203.4935 |
| 56--C | 147.8338 |
| 57--C | 110.4775 |
| 58--C | 168.5699 |
| 59--C | -1853.970 |
| 60--C | 112.3451 |
| 61--C | 161.6181 |
| 62--C | 140.0988 |
| 63--C | 129.1837 |
| 64--C | 167.1203 |
| 65--C | 134.3733 |
| 66--C | 123.3872 |
| 67--C | 108.8472 |
| 68--C | 145.4542 |
| 69--C | 127.0845 |
| 70--C | 144.9069 |
| 71--C | 123.7997 |
| 72--C | 114.9623 |

| | |
|---|---|
| 73--C | -5791.571 |
| 74--C | 502.6550 |
| 75--C | 100.3626 |
| 76--C | 156.6029 |
| 77--C | 148.4182 |
| 78--C | 129.2659 |
| 79--C | -275.8205 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.924156 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.916226 | S.D. dependent var | 2737.656 |
| S.E. of regression | 792.3812 | Akaike info criterion | 16.27854 |
| Sum squared resid | 6.61E+08 | Schwarz criterion | 16.76136 |
| Log likelihood | -9354.970 | Hannan-Quinn criter. | 16.46069 |
| F-statistic | 116.5328 | Durbin-Watson stat | 1.617656 |
| Prob(F-statistic) | 0.000000 | | |

Table 7:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:11
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -329.9633 | 6.78E+08 | -4.86E-07 | 1.0000 |
| CASH_? | 0.015070 | 0.004310 | 3.496270 | 0.0005 |
| REC_? | 0.006945 | 0.002755 | 2.520290 | 0.0119 |
| PLANT_? | -0.119690 | 0.041515 | -2.883065 | 0.0040 |
| INV_? | -0.000932 | 0.003433 | -0.271350 | 0.7862 |
| INT_? | 0.093025 | 0.011368 | 8.182724 | 0.0000 |
| TA_? | 0.007846 | 0.003040 | 2.580799 | 0.0100 |
| LIAB_? | 0.006402 | 0.002180 | 2.936523 | 0.0034 |
| RET_? | 0.149801 | 0.011186 | 13.39182 | 0.0000 |
| GP_? | -0.039295 | 0.001933 | -20.33233 | 0.0000 |
| OI_? | 0.149111 | 0.119031 | 1.252711 | 0.2106 |
| OIA_? | -0.066898 | 0.123893 | -0.539968 | 0.5893 |
| NIL_? | -0.733545 | 0.037198 | -19.71981 | 0.0000 |
| DIV_? | -1.880457 | 0.066149 | -28.42755 | 0.0000 |
| CPC_? | -123.7315 | 325.1314 | -0.380558 | 0.7036 |
| CPC_GDP_? | 2672135. | 12482735 | 0.214066 | 0.8305 |
| GDP | 1.12E-05 | 14617.13 | 7.67E-10 | 1.0000 |
| DV1993_? | 256.0306 | 3.08E+08 | 8.31E-07 | 1.0000 |
| DV1994_? | 221.1583 | 2.90E+08 | 7.63E-07 | 1.0000 |
| DV1995_? | 210.3042 | 2.75E+08 | 7.63E-07 | 1.0000 |
| DV1996_? | 208.1028 | 2.58E+08 | 8.07E-07 | 1.0000 |
| DV1997_? | 193.2701 | 2.36E+08 | 8.20E-07 | 1.0000 |
| DV1998_? | 145.1252 | 2.15E+08 | 6.75E-07 | 1.0000 |
| DV1999_? | 228.4222 | 1.91E+08 | 1.20E-06 | 1.0000 |
| DV2000_? | 205.4735 | 1.66E+08 | 1.24E-06 | 1.0000 |
| DV2001_? | 316.5353 | 1.54E+08 | 2.06E-06 | 1.0000 |
| DV2002_? | 219.9893 | 1.40E+08 | 1.57E-06 | 1.0000 |
| DV2003_? | 234.7706 | 1.20E+08 | 1.96E-06 | 1.0000 |
| DV2004_? | -60.97635 | 89120618 | -6.84E-07 | 1.0000 |
| DV2005_? | 101.4319 | 56597512 | 1.79E-06 | 1.0000 |
| DV2006_? | 122.4717 | 25477651 | 4.81E-06 | 1.0000 |
| DV2009_? | 399.0869 | 9471898. | 4.21E-05 | 1.0000 |
| DV2008_? | 278.7538 | 8258676. | 3.38E-05 | 1.0000 |
| Fixed Effects (Cross) | | | | |
| 01--C | -75.46286 | | | |
| 02--C | 167.5074 | | | |
| 03--C | -57.99686 | | | |
| 04--C | -277.8288 | | | |
| 05--C | -1250.177 | | | |
| 06--C | 479.1045 | | | |
| 07--C | 78.86011 | | | |
| 08--C | 91.30274 | | | |
| 09--C | 92.26066 | | | |
| 10--C | 163.0062 | | | |
| 11--C | 128.7107 | | | |
| 12--C | 17.99976 | | | |
| 13--C | 142.2529 | | | |

| | |
|---|---|
| 14--C | -1525.109 |
| 15--C | 356.3061 |
| 16--C | -83.68929 |
| 17--C | -9.619475 |
| 18--C | -279.2892 |
| 19--C | -216.3044 |
| 20--C | 200.5101 |
| 21--C | 1165.940 |
| 22--C | -65.40916 |
| 23--C | -1433.261 |
| 24--C | -540.9054 |
| 25--C | 308.7697 |
| 26--C | 923.2084 |
| 27--C | 21.45514 |
| 28--C | 946.7050 |
| 29--C | -31.55400 |
| 30--C | -464.5785 |
| 31--C | 169.5877 |
| 32--C | 187.1192 |
| 33--C | 157.8137 |
| 34--C | 132.7097 |
| 35--C | 218.1909 |
| 36--C | 107.9231 |
| 37--C | 99.73725 |
| 38--C | 89.90610 |
| 39--C | 110.4514 |
| 40--C | 110.1462 |
| 41--C | 110.9792 |
| 42--C | 117.6610 |
| 43--C | 106.1342 |
| 44--C | 177.1436 |
| 45--C | 142.3006 |
| 46--C | 89.64057 |
| 47--C | 113.1191 |
| 48--C | 200.1432 |
| 49--C | 98.80471 |
| 50--C | 109.3165 |
| 51--C | 111.5805 |
| 52--C | 177.4536 |
| 53--C | 123.3834 |
| 54--C | 134.3422 |
| 55--C | 202.1664 |
| 56--C | 148.3296 |
| 57--C | 109.9945 |
| 58--C | 169.1426 |
| 59--C | -1852.563 |
| 60--C | 115.3284 |
| 61--C | 162.7559 |
| 62--C | 138.4978 |
| 63--C | 129.6326 |
| 64--C | 166.9701 |
| 65--C | 134.8501 |
| 66--C | 110.2877 |
| 67--C | 108.7625 |
| 68--C | 145.9710 |
| 69--C | 127.2231 |
| 70--C | 144.4336 |
| 71--C | 124.7628 |
| 72--C | 115.5067 |

| | |
|---|---|
| 73--C | -5789.168 |
| 74--C | 502.5305 |
| 75--C | 97.26544 |
| 76--C | 157.3319 |
| 77--C | 148.0074 |
| 78--C | 134.6918 |
| 79--C | -276.3837 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.924156 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.916225 | S.D. dependent var | 2737.656 |
| S.E. of regression | 792.3837 | Akaike info criterion | 16.27854 |
| Sum squared resid | 6.61E+08 | Schwarz criterion | 16.76137 |
| Log likelihood | -9354.974 | Hannan-Quinn criter. | 16.46070 |
| F-statistic | 116.5320 | Durbin-Watson stat | 1.617218 |
| Prob(F-statistic) | 0.000000 | | |

Table 8:

Dependent Variable: LLP_?
Method: Pooled Least Squares
Date: 05/17/12 Time: 23:13
Sample: 1993 2009
Included observations: 17
Cross-sections included: 79
Total pool (unbalanced) observations: 1163
WARNING: estimated coefficient covariance matrix is of reduced rank

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -284.3064 | 6.83E+08 | -4.16E-07 | 1.0000 |
| CASH_? | 0.015072 | 0.004312 | 3.495053 | 0.0005 |
| REC_? | 0.006947 | 0.002757 | 2.519812 | 0.0119 |
| PLANT_? | -0.119741 | 0.041535 | -2.882884 | 0.0040 |
| INV_? | -0.000928 | 0.003435 | -0.270142 | 0.7871 |
| INT_? | 0.093034 | 0.011374 | 8.179684 | 0.0000 |
| TA_? | 0.007842 | 0.003042 | 2.578267 | 0.0101 |
| LIAB_? | 0.006406 | 0.002181 | 2.936687 | 0.0034 |
| RET_? | 0.149801 | 0.011193 | 13.38396 | 0.0000 |
| GP_? | -0.039294 | 0.001934 | -20.32256 | 0.0000 |
| OI_? | 0.149517 | 0.119110 | 1.255284 | 0.2097 |
| OIA_? | -0.067358 | 0.123980 | -0.543295 | 0.5870 |
| NIL_? | -0.733480 | 0.037220 | -19.70661 | 0.0000 |
| DIV_? | -1.880416 | 0.066181 | -28.41340 | 0.0000 |
| CPC_? | -108.2268 | 338.0436 | -0.320156 | 0.7489 |
| CPC_GDP_? | 1942963. | 13217302 | 0.147002 | 0.8832 |
| CPC_TA_? | 11565.29 | 68854.09 | 0.167968 | 0.8666 |
| GDP | -0.000968 | 14719.72 | -6.57E-08 | 1.0000 |
| DV1993_? | 237.0169 | 3.10E+08 | 7.64E-07 | 1.0000 |
| DV1994_? | 201.3391 | 2.92E+08 | 6.90E-07 | 1.0000 |
| DV1995_? | 193.2268 | 2.77E+08 | 6.97E-07 | 1.0000 |
| DV1996_? | 190.8367 | 2.60E+08 | 7.35E-07 | 1.0000 |
| DV1997_? | 178.2319 | 2.37E+08 | 7.51E-07 | 1.0000 |
| DV1998_? | 130.0346 | 2.17E+08 | 6.00E-07 | 1.0000 |
| DV1999_? | 214.8167 | 1.92E+08 | 1.12E-06 | 1.0000 |
| DV2000_? | 194.2810 | 1.67E+08 | 1.17E-06 | 1.0000 |
| DV2001_? | 305.9396 | 1.55E+08 | 1.98E-06 | 1.0000 |
| DV2002_? | 210.0888 | 1.41E+08 | 1.49E-06 | 1.0000 |
| DV2003_? | 226.9112 | 1.21E+08 | 1.88E-06 | 1.0000 |
| DV2004_? | -67.19610 | 89746104 | -7.49E-07 | 1.0000 |
| DV2005_? | 97.39306 | 56994737 | 1.71E-06 | 1.0000 |
| DV2006_? | 120.5076 | 25656464 | 4.70E-06 | 1.0000 |
| DV2009_? | 398.4802 | 9538375. | 4.18E-05 | 1.0000 |
| DV2008_? | 279.1136 | 8316639. | 3.36E-05 | 1.0000 |
| Fixed Effects (Cross) | | | | |
| 01--C | -74.49617 | | | |
| 02--C | 167.3758 | | | |
| 03--C | -57.62206 | | | |
| 04--C | -277.5936 | | | |
| 05--C | -1250.500 | | | |
| 06--C | 478.9229 | | | |
| 07--C | 78.97113 | | | |
| 08--C | 91.81037 | | | |
| 09--C | 92.37174 | | | |
| 10--C | 163.2027 | | | |
| 11--C | 128.7106 | | | |
| 12--C | 18.06415 | | | |

| | |
|---|---|
| 13--C | 142.3572 |
| 14--C | -1525.339 |
| 15--C | 356.3889 |
| 16--C | -83.91187 |
| 17--C | -10.22197 |
| 18--C | -278.9655 |
| 19--C | -215.9608 |
| 20--C | 200.4666 |
| 21--C | 1166.361 |
| 22--C | -65.49719 |
| 23--C | -1433.130 |
| 24--C | -540.5947 |
| 25--C | 309.1032 |
| 26--C | 923.5160 |
| 27--C | 21.83531 |
| 28--C | 946.5808 |
| 29--C | -30.93049 |
| 30--C | -464.2559 |
| 31--C | 169.0684 |
| 32--C | 186.9631 |
| 33--C | 157.8543 |
| 34--C | 132.5440 |
| 35--C | 217.8479 |
| 36--C | 107.9269 |
| 37--C | 99.55224 |
| 38--C | 89.93062 |
| 39--C | 110.7355 |
| 40--C | 110.1180 |
| 41--C | 111.1478 |
| 42--C | 117.3882 |
| 43--C | 105.9741 |
| 44--C | 177.1738 |
| 45--C | 142.1626 |
| 46--C | 90.05993 |
| 47--C | 112.3412 |
| 48--C | 200.1329 |
| 49--C | 98.93508 |
| 50--C | 109.2617 |
| 51--C | 111.4607 |
| 52--C | 177.5754 |
| 53--C | 123.4937 |
| 54--C | 134.1581 |
| 55--C | 202.3121 |
| 56--C | 148.3255 |
| 57--C | 110.1182 |
| 58--C | 169.0018 |
| 59--C | -1852.856 |
| 60--C | 111.9874 |
| 61--C | 162.5036 |
| 62--C | 138.8652 |
| 63--C | 128.3177 |
| 64--C | 167.0551 |
| 65--C | 134.3119 |
| 66--C | 121.4370 |
| 67--C | 108.8292 |
| 68--C | 145.8010 |
| 69--C | 127.1561 |
| 70--C | 144.1398 |
| 71--C | 124.7490 |

| | |
|---|---|
| 72--C | 115.2912 |
| 73--C | -5790.217 |
| 74--C | 502.5724 |
| 75--C | 98.29101 |
| 76--C | 157.2146 |
| 77--C | 148.1188 |
| 78--C | 129.7450 |
| 79--C | -276.0949 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.924158 | Mean dependent var | 539.3037 |
| Adjusted R-squared | 0.916148 | S.D. dependent var | 2737.656 |
| S.E. of regression | 792.7499 | Akaike info criterion | 16.28024 |
| Sum squared resid | 6.61E+08 | Schwarz criterion | 16.76741 |
| Log likelihood | -9354.958 | Hannan-Quinn criter. | 16.46403 |
| F-statistic | 115.3758 | Durbin-Watson stat | 1.617312 |
| Prob(F-statistic) | 0.000000 | | |