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Macroeconomic Reform and Policy: The Case of Peru - Analyzing the effects of some major economic, political and social changes in the Peruvian Financial market for the period between 1990 and 1992

Marco A. Hernandez
Massachusetts Institute of Technology

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Massachucetts Institute of Technology
Cambridge, MA

Abstract

This paper discusses the effects of the changes in economic policies and important events, between 1990 and 1992, on the values of an economic sector's equity in Peru. I use event studies to explain the differences in returns during the event window in the main economic sectors in Peru including mining, beer, banking and industrial sector. Four key events are analyzed: The *Fujishock*, the announcement of policy changes and changes in the legal system, Fujimori's announcement of the dissolution of Congress and the suspension of the Constitution, and the capture of the chief of the Shining Path guerrillas, Guzman.

I estimate the evolution of the abnormal returns of the main economic sectors. The regression results show that these events produced significant changes, both positive and negative, in the Peruvian stock market. I argue possible explanations for these findings and analyze the implications of these in future economic decisions.

I.   Introduction

This paper seeks to estimate the effects that several of President Alberto Fujimori's policy changes had on segments of the Peruvian economy with emphasis on the economic adjustment program implemented in 1990. In order to calculate these effects, I include an analysis of the political and social events that occurred during the period when the stabilization program was implemented; both social and political events in the Peruvian economy are included in the study, in addition to the policy changes. Events studies are used to show the evolution of the returns for the main economic sectors during four main events that took place during the period of 1990-1992, with the entrance of Fujimori into the presidency. My findings suggest the effects of key announcements on the market economy using the differences in abnormal returns over the event window.

Four key events are studied in this paper; these jolted the Peruvian economy at the beginning of the Fujimori years (1990-1992) and can be categorized as political, economic and social. The first event took place on August 8, 1990, when the fiscal and monetary regimes dramatically changed, with the intention of controlling the current hyperinflation and reducing trade barriers. The second event took place later that month (August 20), when a new set of laws were passed to encourage investment and improve the credit system, affecting the banking sector most, while the third took place on April 5, 1992, when Fujimori dissolved Congress and suspended the Constitution with the blessing of the armed forces. Finally, the fourth event occurred on September 12, 1992, when the chief of the Shining Path guerrillas, Abimael Guzman, was arrested, together with other high-ranking leaders of the same movement. Since the stock market was greatly affected by these events, I attempt to explain the changes on the price indices in the main economic sectors in the Peruvian economy.

The purposes of the following sections are to describe the economic situation faced by President Alberto Fujimori's administration, and to estimate and analyze the effects of Fujimori's adjustment plan on the Peruvian economy, in addition to the effects of other political and social events that occurred during the period of stabilization. In order to test the significance of these events, I ran a series of regressions to analyze the changes in the value of the main economic sectors in the Peruvian economy before and after the announcements. Section II provides a background of the economic inheritance received by Fujimori's administration and explains the major concerns that had to be addressed in order to stimulate economic growth. Section III introduces the empirical approach that attempts to estimate the effects of major events on the Peruvian market and analyzes the results obtained, suggesting some theories and explanations for the findings.

II. The Economy: History and Background

The economic situation before 1990

Like most emerging markets, Peru has been vulnerable to political volatility and economic ideology. Between 1930 and the mid 1960s, Peru had one of the most successful economies in Latin America. In 1975, General Morales-Bermudez implemented an economic austerity plan that caused a fiscal and current account deficit and a high external debt burden. In 1980, Fernando Belaunde adopted a more restrained spending policy, leading to higher economic growth. However, in 1985, Alan Garcia Perez brought the country into a deepening economic crisis: recession, hyperinflation, lack of international reserves and high fiscal deficits.

Garcia increased spending and declared that the country was not going to pay its debt. Private investment collapsed while the deficit in the public sector increased; the current account

worsened as exports decreased substantially[1]. Real GDP fell 8.3% in 1985 and 11.9% in 1989, while real investment showed an even greater fall: 9.2% in 1988 and 26.1% in 1989[2]. Inflation reached 1,722.3% in 1988 and 2,755.3 in 1989; prices controlled by the government via subsidies fell behind relative to the price of other products[3]. Taxes and pensions were reduced, which reduced the government's capacity to improve the fiscal deficit.

Garcia used all of the remaining international reserves of the Central Bank. Fujimori's administration encountered a deficit of -$105 million. According to the fiscal accounts, government spending in Garcia's period doubled the current government earnings (see Table 2.1).

Table 2.1: Government's Earnings and Spending in 1990 (Figures Expressed in Millions of Soles of October 1991). Source: Peruvian Central Bank.

	Government's Earnings and Spending in 1990			
	Current Earnings	**Current Spending**	**Economic Result**	**As % of GDP**
January	357.0	546.9	-241.5	5.7
February	260.0	551.6	-370.9	9.1
March	310.9	641.5	-436.0	10.3
April	327.0	503.2	-263.6	6.9
May	292.5	841.0	-617.6	14.5
June	287.0	682.3	-489.6	12.3
July	222.4	450.8	-304.4	8.7

Table 2.1 shows how the fiscal deficit worsened previous to the advent of Fujimori. Table 2.2 illustrates the evolution of the basic macroeconomic indicators for the period between 1986 and 1990. These figures illustrate the economic situation inherited by Fujimori. The rate of inflation increased substantially (from 62.9% in 1986 to 7,649.7% in 1990), while GDP growth decreased from 10.8% in 1986 to -4.6% in 1990 (see Table 2.2). The inflationary background showed a trajectory that leaned towards hyperinflation (Frenkel, 1990). Garcia's government did not undertake effective adjustment policies to reduce inflation, and in the long run this, along

with the critics of foreign governments and credit associations such as the IMF[4], created a
recession.

Table 2.2: Evolution of the Basic Macroeconomic Indicators in Peru (Period between 1986 and 1990). Source: Peruvian Central Bank.

Basic Macroeconomic Indicators by Year					
	1986	**1987**	**1988**	**1989**	**1990**
Annual Inflation	62.9	114.5	1722.3	2775.3	7649.7
GDP Growth	10.8	9.7	-8.3	-11.9	-4.6
Investment Growth	45.6	23.7	-9.2	-26.1	1.7
Imports/GDP (%)	12.1	12.3	11.6	11.6	-
Exports/GDP (%)	11.8	10.3	11.2	19.1	-
Total Ext. Debt ($MM)	13,508	14,360	15,427	15,796	16,301
Fiscal Deficit/GDP (%)	5.2	6.9	7.6	6.2	3.0
Tax Rate (%)	11.2	8.3	8.5	5.8	7.4
Total Liquidity/GDP (%)	14.9	13.7	7.9	6.3	4.3

Still, hyperinflation and fiscal deficit were not the only problems affecting the Peruvian

economy at this time. Terrorism had grown substantially over the previous 10 years, leading to

the decrease of foreign investment, tourism revenues and domestic production. The main terrorist

movement had its major growth during the government of Alan Garcia: The Shining Path, with

Abimael Guzman as leader of the movement. The Shining Path guerillas were responsible for the

death of more than 30 thousand people over the course of 12 years. Moreover, before the

administration's change, the Shining Path had taken many hectares of territories in the mountains

and in the jungle; a few states that were attacked by this terrorist movement include Ayacucho,

Puno, Cuzco, Huancayo, Junin, Pasco and Lima.

Terrorism affected the Peruvian economy dramatically. The leaders of some of the

biggest companies in Peru had to leave the country because their lives were being threatened.

Business activities of most of the companies in the industrial and mining sectors were conducted

in the mountains; since terrorists occupied these territories, the levels of both private and public

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investment decreased even more. Fujimori's administration also had this major social problem to solve, since the recession was going to continue as long as terrorism persisted.

In short, the economic situation inherited by Fujimori's administration was certainly not favorable. The ideology of the government had to become more serious about economic policies in both the monetary and fiscal regimes, and an adjustment was needed immediately; the following section addresses these topics.

The government's new mentality and the adjustment plan of 1990

The advent of President Fujimori in 1990 led to a drastic change in the political and economic regime. Only twelve days after Fujimori took office, changes were announced in both fiscal and monetary policies. Peru opened its doors to foreign investment as it changed the legal system in order to increase government revenues and reduce hyperinflation. Further, Fujimori's administration undertook an ambitious privatization program, strengthened the tax system, and lifted exchange controls and restrictions of profits, dividends and royalties. Peru's economic stabilization program was questioned by some economists, such as Mr. Hernando De Soto, who stated that the macroeconomic program lacked social reforms and would increase poverty[5]. Nevertheless, three years after Fujimori took office, Peru had become the fastest growing market in Latin America and the second most profitable in the world, according to the International Finance Corporation[6]. Jose Otero, president of the Lima Bolsa's board in 1993, stated that the government made clearer rules that investors appreciated. The new government certainly had a different mentality regarding macroeconomic policies. The protectionist practices that Garcia's government had undertaken in previous years disappeared[7].

These policy changes were drastic since Fujimori did not announce them in his electoral campaign; Fujimori did not specify the contents of the stabilization package[8] (this fact will be useful in the next section when I explain the methodology of the empirical study).

The stabilization program implemented by Fujimori's administration led to a change in the trajectory of economic growth and encouraged many opportunities for investment while improving the current account. The focus of the next section is to analyze how these drastic changes in economic policies affected the Peruvian economy. In order to do this, I also take into account the existence of other political and social problems that affected the economy during the time of the implementation of the adjustment program.

III. Empirical Analysis

An Approach to Estimate the Effects of Major Economic Adjustments and Major Political and Social Events Occurred over the Period between 1990 and 1992

The purpose of this section is to study four key events that took place between 1990 and 1992, which affected the Peruvian economy, and estimate their effects using event studies. Peter Henry (2000) stated that "conducting an event study is the most direct and transparent way of assessing the impact [of economic reforms] on emerging market prices". Financial market data are useful to discern the effects of different announcements on the value of a firm or a group of firms[9]. Using an event study methodology, we can see how the stock market values the changes in both the economic and social regimes in a country. Therefore, we can estimate the effects of the economic adjustment of Fujimori's government with event studies, and see how companies in different economic sectors valued these changes.

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As mentioned, the economic situation in Peru depended not only on hyperinflation and fiscal deficit, but also on terrorism and the political atmosphere. My empirical analysis will take into consideration economic, political and social changes. Later called the Fujishock, the first two events studied (August 8, 1990 and August 20, 1990) are two announcements of the economic adjustment of 1990. The announcement of the Fujishock included the first set of policies that attempted to control inflation, open the market, reduce the fiscal deficit and create economic stability. April 5, 1992, the third event, is Fujimori's announcement of the dissolution of Congress and the suspension of the Constitution, which caused an economic recession due to increased uncertainty among the population. Finally, the last event (September 12, 1990) is the announcement of the capture of Abimael Guzman, leader of the Shining Path guerillas. This capture created better economic expectations and encouraged investments (the search for announcement dates was conduced using the database Lexis/Nexis[10] and Peruvian newspapers and magazines - the methodology section explains this in more detail).

The empirical analysis of these four key events occurred during the implementation of Fujimori's economic adjustment attempt to estimate the effects that these had on the economy. Its results will help us understand if disinflation programs are good for the stock market and analyze the effect of terrorism in Peru.

Assuming rational behavior in the market, the effects of a particular event will be reflected immediately in the security prices, making the event study methodology very effective. In contrast, the effect of a particular announcement will not be reflected immediately on the productivity of a firm; it may take months or even years to see how a specific announcement affects the output of a company.

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The data and methodology sections of the study give a background of the approach that was taken; the results section shows the regressions that were made and the interpretation of the findings obtained. I argue for possible explanations for my results and compare whether the observed effects were consistent with the expectations or policy objectives of the selected events.

Data and Descriptive Findings

The effects of an inflation stabilization program such as the one implemented by Fujimori are not certain, but they vary across countries. Literature about this topic relies mostly on real economy variables, such as GDP growth, employment and wages (Fisher, 1986; Friedman, 1968, Okun, 1978; Vegh, 1992). However, Peter Henry (2001) did a study of how inflation stabilization programs affected the stock market by using event studies. In order to test the effects of both economic and social events in this empirical analysis, I use an approach similar to that of Henry. However, the data I will be using in this study is segmented by sectors rather than by individual companies. The next section explains the details of this methodology but first I would like to discuss the origin of my data set and some descriptive information about the use of event studies and about the Peruvian stock market.

Event studies have been used since 1933, when James Dolley published his paper[11]. Economists have been using event studies ever since in order to capture the effects of an event in a particular firm or economic sector[12]. Some problems related to event studies involve the imprecision of their measurements. There is the possibility of an uncertainty parameter within the event day inference; that is, there is uncertainty in measuring the event window[13]. Another problem is the *trading bias[14]*. However, the events addressed in this paper would not be subject to a *trading bias* because I predict that they are going to have very significant effects on the Peruvian market.

Argentina, Chile, Mexico, Peru and Venezuela are examined in this paper as five emerging markets. The data set used for this empirical analysis was obtained from two main financial sources: Lima's Stock Exchange data source and *DataStream*. Daily observations could only be obtained for the period after (and including) 1990 because daily market records are not available for previous years. Focus events took place during the period of 1990-1992; because of this, there are only two windows in my analysis: the period prior to events and the period after the events. The *broad market*[15] index is defined as the mean of the five emerging markets mentioned; these were the only countries that had stock market information available since 1990. I used the market indexes from these Latin American countries in order to construct the *broad market* (risk-free) index due to the similarities between these economies. A total of 1995 observations are included in the sample.

The data set was divided into economic sectors and I include in my analysis the five most important ones: banking, industrial, mining, beer and *diverse*. These are the sectors that hold the majority of the stocks in Peru; the liquidity of the majority of these assets is high enough to make reasonable assumptions about the rationality of the market. The *diverse* sector includes some major companies that did not belong to a specific sector; some of these firms are in the construction business or other services such as consulting.

It is important to estimate the behavior of a sector's returns around the mentioned events, and to use these estimates to analyze the effect of an event on the Peruvian economy. In order to do this we have to address two questions. First, what is the magnitude of the market response? Second, what is the sign of the response and how does it depend on a specific event? This empirical study addresses both questions and tests the significance of my findings.

Methodology

Construction of the Event Windows

The significance of a specific announcement can be estimated by using corporate returns. In this case the event study has two purposes: (1) to test an "information effect", that is, the impact on the economic sector, and (2) to identify the factors that explain changes in sector value over the event window. This is why it is very important to reduce the measurement error by choosing the most effective event window. There should be a nonzero stock-price reaction on the event date. Information effects have been tested in past works with empirical approaches. Fama, Fisher, Jensen and Roll (1969), also known as FFJR, provided a test based on linear regressions. Most event studies in the literature have used the FFJR[16].

I assume that in the events studied in this paper, no information arrives prior to the events. Given this assumption, the cumulative abnormal returns approach will give a good estimate of the effects of the announcement on the economy. It is reasonable to make this assumption because none of the four events were expected. First, the Fujishock, together with the new set of laws that were announced as an economic adjustment, were contrary to Fujimori's electoral campaign. Second, the announcement of the dissolution of Congress and the suspension of the Constitution not only took by surprise the Peruvian population but also the world as a whole; it seems irrational to think that an announcement of that sort would have been publicly discussed in previous dates. Finally, no information arrived prior to the capture of Abimael Guzman; a police operation of that sort would not have been possible if there had been any previous release of information. Due to the reasons presented, this assumption holds.

Using this model with no arrival of information prior to the event, I constructed the event windows. Because we know the exact dates of the announcements but we do not know the exact times of these, I decided to use a two-day event window (the day of the event and the following

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day). The length of these windows will minimize the measurement costs and would not miss the event itself. Again, the trading bias will not be an issue in this study because of the significance of the events. I assume no serial correlation in stock returns as suggested by the literature, but I take some precautions. Apart from the short event windows, I use the broad market index defined in the data section in order to control for correlated disturbance in the domestic market and for the correlation of the market with the economic sectors. Now that I have established the construction of the event windows, I will explain the non-traditional methodology used to construct the abnormal returns for this study.

Abnormal Returns

The abnormal returns for a given sector were calculated using the following modified Capital Asset Pricing Model (CAPM) methodology:

$$AR_{st} = R_{s\ 1990\text{-}97} - \alpha_{s\ 1996\text{-}97} - \beta_{s\ 1996\text{-}97}\ R\_market_{1990\text{-}97} \quad \textbf{(3.1)}$$

Where "s" denotes a specific sector, "α" denotes the constant from the regression of the sector's expected return in a risk-free sample, and "β" denotes the coefficient from the regression of the sector's expected return in a risk-free sample. Equation (3.1) states that the abnormal return for sector "s" at time "t" is defined as the return of that sector over the total sample (1990-1997) minus the constant α_{hat} obtained from the regression of the sector return on the market return between 1996-1997, minus the product of the parameter β_{hat} obtained in that same regression (for 1996-1997) and the market return over the total sample (1990-1997).

Abnormal Returns (AR) were created with this CAPM instead of the traditional construction due to the lack of data for the period previous to the events. I use the observations from 1996 through 1997 to estimate the predicted α_{hat} and β_{hat} for the period without the presence

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of an event (also called *uncontaminated* sample), for two reasons. First, the time after the events occurred seems long enough to state that the events that are being studied did not affect the market economy between 1996 and 1997. Second, between 1996 and 1997 there were no major economic or political changes in the Peruvian market.

By looking at the behavior of the abnormal returns for each sector separately, we see that between 1996 and 1997 there were no drastic fluctuations in the stock market as those occurred during the early Fujimori years (1990-92). Figure 3.1 shows the evolution of the abnormal returns for the industrial sector. The graph illustrates that the choice of using the period between 1996 and 1997 to create a risk-free sample does not introduce a significant bias to the study, because of the relative flatness during these years.

Figure 3.1: Cumulative Abnormal Returns in the Peruvian Industrial Sector for the Period between 1990 and 1997.[17]

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As shown in Figure 3.1, the cumulative abnormal returns for the industrial sector exhibit significant fluctuations over the period between 1990 and 1993, but then the evolution of the returns is mostly constant over the last years of the sample. I make inferences about the risk-free environment that the Peruvian market was having previous to the events that are being analyzed

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using the data between 1996 and 1997. This is because AR use percent changes that control for the absolute change in stock prices.

Some statistical properties of the abnormal returns include their distribution. According to Jeffrey Wooldridge, AR are normally distributed with a zero conditional mean. There is a sampling error in the measurement of the predicted α_{hat} and β_{hat} due to the uncertainty in the definition of the event window, which leads to serial correlation of the AR. Moreover, AR observations will become independent through time. Under the null hypothesis that the events have no impact on the behavior of the sector returns, the abnormal returns will be low and insignificant when regressed with event dummies.

Empirical Results

In order to test for the significance of these events in the Peruvian stock market, I run regressions using the abnormal returns for the biggest sectors in the economy as the dependent variable and the event dummies as independent variables. I base my analysis on the study of the four events previously mentioned and hypothesize that these events had both positive and negatives effects on the market; they affected each sector in the market similarly in different magnitudes. By taking into account sector returns instead of a particular company's returns, I control for the average effect of these events in a given sector. For example, if a new law were to affect the banking sector, and only the banks that had economies of scale were going to be able to remain competitive after the change in the legal system, then the use of sector returns will estimate the aggregate effect on the industry, rather than just the effect of a specific company (which will not necessarily portray the aggregate economic effect). The effects of these four key events are analyzed in chronological order – the regressions portray the evolution of the abnormal returns (AR) across the event windows.

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Table 3.1 shows the results of the effects of these four events on the five biggest economic sectors in Peru. Columns 1 through 5 in Table 3.1 show the estimated coefficients on the four event dummies for these five economic sectors. Together, these sectors represent the majority of the stocks in Lima's Stock Exchange. The independent variables are the event dummies – the four events that I study are shown in the table, but the regressions were controlled for a total of ten events that occurred between 1990 and 1992[18].

Table 3.1: Measuring the Effects of the Four Main Political, Social and Economic Changes in the Peruvian Stock Market between 1990 and 1992. Dependent Variables are the Abnormal Returns for the Main Economic Sectors. (Standard Errors are shown in Parentheses)

Variable	AR for Bank Sector (1)	AR for Industry Sector (2)	AR for Mining Sector (3)	AR for Diverse Sector (4)	AR for Beer Sector (5)
Event 1	-0.006	0.168**	0.083**	0.227**	0.036**
	(0.031)	(0.015)	(0.019)	(0.017)	(0.007)
Event 2	0.935**	0.050**	-0.0413*	0.063**	0.015*
	(0.031)	(0.015)	(0.019)	(0.017)	(0.007)
Event 3	-0.083*	-0.037**	-0.017	-0.043**	-0.019*
	(0.031)	(0.015)	(0.019)	(0.017)	(0.007)
Event 4	0.097**	0.067**	0.073**	-0.007	0.030*
	(0.043)	(0.021)	(0.027)	(0.024)	(0.010)
R^2	0.331	0.075	0.021	0.091	0.030
Sample Size	1995	1995	1995	1995	1995

Notes:
Event 1 refers to the *Fujishock*; Event 2 refers to the announcement of new a set of laws; Event 3 represents Fujimori's announcement of the dissolution of Congress and the suspension of the Constitution; Event 4 represents the announcement of the capture of Abimael Guzman.

Standard errors are listed in parentheses. A total of ten events (including the four that are being presented) were considered in the regressions in order to reduce bias from possible overlapping effects. Regression coefficients and standard errors are listed for each variable respectively; results are rounded to three decimal places.

An asterisk (*) denotes that the coefficient is significant at the 5% confidence level. Two asterisks (**) denote that the coefficient is significant at the 1% level of confidence.

The predictions that the events were to affect the market as a whole are consistent with the results obtained: the majority of the coefficients show that the events were significant at the

5% confidence level with very high t-statistics. I have therefore proved that these events significantly affected the Peruvian market. The next step is to analyze the magnitudes and signs of the coefficients; in order to explain the effects of the events I will analyze each event separately in chronological order.

The Fujishock

Event 1 is the dummy variable for the *Fujishock*. The announcement was made on August 8th, 1990, and the relevant policy changes were[19]:

- Establishment of disinflation program that included changes in the legal regime in order to give autonomy to financial institutions – the state made the announcement that government's spending was not going to be greater than the government's earnings.

- Elimination of subsidies and price controls for goods such as food and fuel and imports; prices were to be set by supply and demand – prices were going to reflect the companies' costs.

- Elimination of tax exemptions – new taxes for exports and imports were implemented as well in order to improve the fiscal deficit.

- Reduction of trade barriers such as export taxes, tariffs and quotas. Exporters, especially small and medium-size, were going to be stimulated to increase production.

- Establishment of a unique flexible exchange rate, to be determined by supply and demand.

- Establishment of a legal commission to start a privatization program

- Establishment of a beneficiation program for workers.

The regression results show that the *Fujishock* significantly affected the Peruvian stock market. The new laws and policies were intended to reduce inflation in the short run and open the market for free trade, adopting a single and flexible exchange rate. The high t-statistics show that almost every economic sector was affected positively. The only sector that was affected negatively was the banking sector; however, the coefficient is small and insignificant.

The effect of the *Fujishock* on the Industry sector was an increase in the price of the sector index by 17%[20]. Most of the companies that participate in this sector are privately owned, rather than government-owned, and produce goods such as food, furniture, utensils and machinery. The new set of economic polices increased the expectations of a larger market size, giving incentives to these companies to increase their investments. Due to the reduction in trade barriers such as export taxes, the companies in the Industry sector were able to gain a larger market share in Latin America, especially those companies involved in the production of house utensils (house furniture and plastics); these companies introduced new high quality products into South American markets such as Bolivia and Ecuador at competitive prices[21]. The expectations of an increase in sales (without increasing capital stock) rose, and these positive expectations were indicated by the increase in the aggregate price of the sector index.

Another sector that experienced a notable change in price was Diverse. A large number of companies in this sector are related to the construction business. The average change in value of companies in this sector was 22%. This increase in value can be explained by the change from a protectionist market economy to a free market economy. The previous government of Alan Garcia introduced new tariffs and quotas, especially for high-tech machinery, which increased the costs of the construction companies significantly; the production of these goods was very low in Peru at that time. Therefore, the reduction of trade barriers reduced the costs (both fixed and

variable) of these companies, and consequently increased the expectations of higher profits (both for the short and long run).

The *Fujishock* had positive changes in their price indices, and some sectors were more affected than others. The changes in price indices are mainly attributed to the reduction of trade barriers, which decreased costs and consequently created expectations of an increase in profits both in the short and long run. It is worth mentioning that the flexible exchange rate regime also helped the economy to build up international reserves. Moreover, a paper by Armas, Grippa, Quispe and Valdivia analyzes the *Fujishock* and focuses on Fujimori's decision to discontinue the creation of inorganic money: printing of money without the backup of assets. Armas et al. show that the monetary policy undertaken by Fujimori reduced uncertainty and encouraged investments as the rate of inflation started to decrease.

New set of Laws Intended to Increase Liquidity and Encourage Investments

On August 20, 1990, the government announced a new set of laws intended to encourage investments (both public and private) and increase the investment rate. Most of the laws were directed towards improving financial institutions such as increasing banks' liquidity and reducing transaction costs in order to encourage investment, increasing the savings rate of individuals.

The announcement of the new set of laws was predicted to have an immediate effect for financial institutions, which until then had been subject to high transaction costs introduced by the previous government. The relevant changes in the legal regime include[22]:

- Transaction costs were reduced: banks had no time restriction regarding the completion of a transaction; previously they had to wait at least 15 days before assigning a loan. The savings in foreign currency was authorized. Regulations regarding foreign currency transactions were significantly relaxed.

- The Central Bank was given autonomy with the main objective of reducing inflation and controlling money supply. The new monetary policy was based on three principles: positive interest rates to increase savings, higher credit availability for both public and private investments, and prudent growth in liquid assets relative to international reserves.

- The law of "Estatizacion de la Banca" was eliminated. This law stated that financial decisions in banks had to be approved by the state before they were undertaken.

We expected these laws to have an important effect on the stock market. The regression results for this event show a positive effect for most economic sectors, especially the banking sector.

The set of new laws resulted in a positive change of 93% in the price of the banking sector index; the effect is captured by a t-statistic close to 31. When the announcement was made, the expectations for an increase in liquid assets for banks increased, which positively affected the stock prices. The reduction in transaction costs was accompanied by an increase in savings and investment due to an increase in credit availability. Moreover, the revenues for the financial institutions were predicted to increase substantially because of an increase in both the demand and supply for money.

Table 3.2 shows the increase in the international reserves for banks before and after this set of laws was implemented. The results demonstrate the returns for the sector index by showing

a steady increase in net international reserves and nominal liquidity, both for the Central Bank as well as for private banks.

Table 3.2: **Increments in International Reserves and Liquidity of the Peruvian Financial System over the Period between July and October, 1990.** Source: Peruvian Central Bank

International Reserves (IR) in Millions US$				
	July	August	September	October
Banking System Gross IR	1545	1862	2187	2354
Banking System Net IR	-143	96	425	652
Central Bank's Gross IR	1105	1303	1761	1896
Central Bank's Net IR	105	142	427	545
Liquidity in Financial System (In Billions Intis I/.)				
Nominal Liquidity	126	434	640	807

Table 3.2 shows that both net and gross international reserves increased substantially over a period of 4 months; for private banks there was a 550% positive change in net international reserves while the Central Bank experienced a 419% increase. The expectations of an increase in profits in financial institutions were correct: Table 3.2 demonstrates that the new set of laws did increase the liquidity of banks and also increased the savings rate, especially deposits made in foreign currency. Moreover, the reduction in transaction costs intended to encourage investment enlarged client portfolios in financial institutions and consequently increased the revenues for this sector. In order to lower the risk of bank runs, it is necessary that the financial system keeps high levels of liquid assets[23]. The economic growth of this economy can be therefore be explained by the Solow Model: an increase in the savings rate increases the level of investments and consequently increases the level of total output.

The price changes for the other sectors are not as significant as that in the banking sector. Nonetheless, it is worth mentioning that the mining sector was affected negatively (decrease of 4% in price index); this change seems to have occurred because the new policies were expected

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to increase the costs of the investments that the mining sector was already undertaking. The rise in the interest rate created negative expectations in the mining sector, which had already started to buy new machinery in order to increase production and export[24]; uncertainty increased after this announcement was made[25]. Nevertheless, the data shows that this negative trend in price was overcome in the following weeks. Therefore, it is reasonable to state that the uncertainty caused by the announcement of August 20 created negative expectations in the mining sector but that these were later diminished. Calvo (1994) studied the change in the Peruvian monetary policy in 1990 and found that price stability and reduced inflation led to new investments (private and public) and fostered GDP growth.

Fujimori Dissolves Congress and Suspends the Constitution

Sunday April 5, 1992 was a very important day in Peruvian history. Fujimori announced late Sunday night that he was going to dissolve Congress and suspend the Constitution with the blessing of the armed forces. Fujimori seized dictatorial powers and stated that legislative and judicial corruption was restricting his efforts to rouse Peru from its economic depression and to combat an insurgency of the Shining Path guerrillas that had left almost 25,000 people dead over 12 years[26]. Fujimori announced that his cabinet was going to assume congressional powers temporarily while a new legislative regime was being created; however, he did not specify when the vote would be. Armored personnel carriers started to patrol the streets and soldiers checked cars entering the capital. Soldiers were sent to broadcasting stations and some of these stations were shut down after most parties in the senate made announcements on these stations and called for Peruvians to rebel against Fujimori. A feeling of uncertainty was created not only for the Peruvian population but also for foreign investors.

The White House stated that Fujimori's actions were "regrettable" and that Fujimori was taking a step back for democracy. Also, the US suspended $45 million of the $237 million in 1991 military and economic aid to Peru that had yet to be allocated[27]. Almost all South American presidents expressed their concern regarding Fujimori's actions and characterized them as disappointing; creditor nations froze more than $1.5 billion of debt relief and development grants in condemnation of Fujimori's palace coup.

Our hypothesis that all economic sectors in the Peruvian market were affected negatively was proved by the results obtained. The level of uncertainty increased among all sectors of the population including foreign investors, and this rise in uncertainty was followed by the reduction of foreign aid; therefore, both the reduction of financial assistance and uncertainty contributed to a market crash. Table 3.1 shows that all economic sectors were significantly affected and the price index decreased for all of them. The biggest change in the market took place in the banking sector: price index dropped 8%. This change in value can be explained by a variety of factors. First, the announcement that foreign aid was going to be suspended was expected to affect the international reserves for banks and reduce their liquidity. Second, the increased uncertainty in all sectors led to a decrease in the savings rate, thereby lowering reserves for banks and leaving fewer funds available for investments. Third, entrepreneurs were expected to reduce investments and maintain their level of cash flow. All these factors affected the banking sector price index, which until that moment had displayed a positive trend[28].

The Capture of Abimael Guzman

Abimael Guzman, chief of the Shining Path guerrillas, was captured on September 12, 1992, together with other high-ranked leaders of the same movement. Guzman had become the commander of the fastest growing guerrilla movement in Latin America[29]. The presence of the

Shining Path reduced the investments in the economy, especially those made by the mining and industry sectors, which wanted to invest in the mountains and could not do it because those territories were controlled by the guerrilla force. Guzman's capture therefore was predicted to affect all economic sectors in the market, especially those whose activities were done mainly in the mountains. Uncertainty was expected to decrease among all sectors in the population, generating higher profits due to increased investments.

The results shown in Table 3.1 are consistent with our predictions. The economy was significantly affected by the capture of Guzman and changed the negative trend that had occurred since Fujimori dissolved Congress. All the economic sectors were positively affected when the announcement was made. Both the mining and industry sector had a positive change of 7%. This is explained by the fact that the business activities of most of the companies in these two sectors were done in the mountains. Also, the lives of the CEO's of some companies in these sectors were being threatened, which led to the emigration of most of the officers of these companies. Guzman's capture encouraged investments and allowed the repatriation of human capital (management), generating higher productivity growth. Banks were affected the most (9% increase), which can be explained by the fact that the banking industry was lending to both the mining and the industry sectors; therefore, it was expected to be affected to a greater extent because banks would be giving more loans to both sectors and obtaining higher revenues in proportion to the increases in the number of loans. Guzman's capture increased the confidence among the population.

IV.   Conclusions

This paper's main objective was to analyze the effects of four key events on the Peruvian stock market. I employed a non-traditional event study by changing the methodology of the construction of the AR in order to be able to explain the effects of these events with constraints in the data set. I reduced the uncertainty bias by using a two-day window frame.

I explored the influence of these four announcements on the stock market and found that these events significantly affected the price indices of the main economic sectors. The *Fujishock* affected the sector returns positively; the announcement of new economic policies on August 20, 1990, boosted the value of most companies; Fujimori's announcement of the dissolution of Congress created a market crash, reversing the positive trend in sector returns; finally, Guzman's capture restored confidence among the population and encouraged investments, increasing on average the value of the firms in every sector.

The analysis of these events gives a background of how the changes in economic policy and social changes can significantly affect market expectations. It indicates the evolution of economic growth of a country and how the market values the changes in economic policies. It is necessary to know how different changes in economic policies affect the economy in order to make informed decisions regarding future policies. Although hard to predict, governments should keep in mind how a particular announcement may affect the economy; a negative announcement will create a decrease in economic growth, reduce social welfare and consequently increase poverty. In contrast, market expectations will rise if a positive announcement is made. I leave open the decision for new research and development of event

studies regarding economic policy changes as well as political changes, so that a deeper understanding of the stock market can be reached.

V. Epilouge

What happened to the Peruvian stock market in the long run? As mentioned at the beginning of the paper, the Peruvian market has proved highly vulnerable to political changes. At the end of the first government of Alberto Fujimori, the Peruvian market was among the fastest growing in Latin America. However, with Fujimori's reelection, the Peruvian economic miracle lost its bloom. In 1996 there was a remarkable slowdown in the economy. Political repression created uncertainty in the population and discouraged both consumption and investment. The slowdown in the economy was accompanied by increased unemployment. The aggressive privatization programs that occurred in the early Fujimori years disappeared. In order to increase popularity, the government increased trade barriers by raising tariff levels in order to encourage growth of domestic companies. However, the increase in prices and reduced quantities contributed to higher restrictions, creating a discomfort in the population, which later became the source of future economic downturn.

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Footnotes

[1] Until 1990, Peru was a closed market with a variety of four government-set exchange rates, plus the unofficial *parallel rate,* which indicated the real value of the Inti currency.

[2] See Iguinez, Basay and Rubio (1993).

[3] One year and a half before the change in government, the Peruvian economy maintained a level of weekly inflation of 10%. In 1988, Garcia undertook an adjustment program that together with an increase in subsidies led to this stability of the inflation rate. This inflationary rate was relatively autonomous respective to the devaluation in the free market (Iguiniz, Basay, Rubio, 1993). The fluctuations of the weekly devaluation were greater and with no apparent relation with those of inflation.

[4] Iguiniz, Basay and Rubio (1993) stated that Garcia's government effectively controlled the exchange rate by monetary emission; there was a strong relationship between the behaviors of these variables since January, 1990. However, they found that despite the high level of inflation, the portfolios did not show a tendency to acquire assets in foreign currency. Moreover, the evolution of diverse indicators showed that this situation was not going to be controllable in the next months. First, fiscal deficit was growing tremendously. Second, international reserves were decreasing at an increasing rate.

[5] Source: El Comercio, Peruvian newspaper: August 15, 1990.

[6] Source: London Financial Times: April 10, 1993.

[7] Subsidies to reduce the price of some products (including rice, gasoline, potatoes, sugar) vanished and it was announced that in order to increase international reserves, it was necessary to open the market (something that Garcia's government decided not to do).

[8] In the first run of elections, the political party APRA (Garcia's party) did a massive campaign against the liberal party of Vargas Llosa, who proposed an adjustment via privatizations in order to reduce the fiscal deficit. In the second round of elections, Fujimori undertook the same campaign as the APRA party, talking about the dangers of the institutional aspects of Vargas Llosa's proposition, without talking about his own economic program.

[9] There are different methodologies for value event studies but most of them rely on the estimation of abnormal returns of companies or sectors and their behavior at the time of the announcement.

[10] Lexis/Nexis offers the advantage of a broad coverage of information resources. It covers more than 2,300 full-text information sources from the US and overseas newspapers, magazines, journals, wire services and transcripts (Henry, 2000).

[11] Dolley examined the price effects of stock splits using a sample from 1921 to 1931. By analyzing the changes in nominal price at the time of the split, he found that the price increased in 57 of the cases and declined only in 26.

[12] Some event studies that were undertaken between the 1930's and 1960's include those done by John Myers and Archie Bakay (1948), and Austin Barker (1957, 1957, and 1958). The methodology being used in current event studies was introduced by Ball and Brown (1968), who studied the effect of information content in earnings.

[13] When an announcement appears in the news, one cannot be certain about the prior information that the market had. To control for this, we expanded the event window, although this procedure reduces the power of the study.

[14] A *trading bias* occurs because the price of the stocks at the end of the day or week is defined as the *closing price* instead of the average price

[15] *Broad market* is defined as a general index that is not significantly affected by the events (risk-free). By constructing an index based on emerging countries, we can estimate the regression coefficients more accurately.

[16] A list of applications include studies by Eckbo (1986), Lucas and McDonald (1991), Asquith and Mullins (1986).

[17] The evolution of the cumulative abnormal returns tell us how the stock prices evolve (in the industrial sector in this case) controlling for market volatility.

[18] In the regressions we also consider six other events that affected the Peruvian economy, such as further changes in the legal system, although none was as important as the four main events I consider. For example, one of the events is the announcement of the creation of "Certificado de Moneda Extrangera Libre" (December 23rd, 1990), which is a law that encouraged the flow of finance. Other events included were the announcement of the law of private investment (September 25th, 1991), and the announcement that the ministry of economics left the administration after having disagreements with the president (December, 1992). Another event included was the announcement of the approval of the economic program by the IMF (September 13th, 1991), but this was not expected to have a significant effect on the Peruvian economy since it is not certain that there was not previous release of information.

[19] Source: Los Ajustes, 1993.

[20] This is a very significant change if we take into account that it occurred in a two day event window.

[21] Source: Los Ajustes, 1993.

[22] Source: Aspectos Economicos, 1995.

[23] A paper by Balino, Bennet and Borensztein (1999) show that the increase in liquidity levels in the Peruvian financial sector in the early 1990s is explained by an increase in foreign currency deposits over that period.

[24] Source: El Comercio.

[25] According to El Comercio, uncertainty increased because most companies in the mining sector already had a good relationship with the previous system, and they feared that changes were going to increase production costs.

[26] Source: El Comercio, Peruvian newspaper: April 6th, 1992, edition.

[27] Source: St. Louis Post-Dispatch, Inc, April 7th, 1992 edition.

[28] Although we expected the magnitudes of the changes in price indices to be higher, we have to consider that the event affected the market as a whole, thereby reducing the differences between sectors.

[29] Source: Caretas, October, 1992, edition.