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Economic announcements and the 10-year U.S. Treasury trading dynamics

Stefanos Tsemperlidis
Supervisor: Assistant Professor
Stavros Degiannakis

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Abstract

The present study focuses on the relation of the U.S. scheduled economic announcements and the 10-year U.S. Treasury bond market. Our data sample consists of economic policy indicators calendars and high frequency variables of the 10y Treasury trading dynamics, from 4 January 2012 to 31 December 2014. We investigate which announcements are affecting this certain market especially in days of shocks in returns, extremes in price volatility and maximums of volume of trade and tick count. The novelty of this study is that we trace significant announcements, consistent with the literature, regardless of their content and without using expectational data/forecasts. Our findings show that there is a daily pattern in the trading activity of the 10y U.S. Treasury bond, related with announcement releases and the market's daily function. Moreover, we trace ten announcements to be significant for all the trading dynamics variables examined. Particularly, we find 2 weekly, 6 monthly, 1 released 8 times per year and 1 released twice in a month, announcements as important for this asset; in regard to their content 4 announcements concern monetary policy, 4 concern economic activity and 2 concern expectations. Another result about significant announcements is the prevalence of announcements released by public than private agencies; 8 out of 10 are released by public agencies. In addition, we observe clustering effects of maximums and shocks of the variables under examination; particularly we observe that maximums in volume and tick count during a trading month appear in sequential days. Finally, we document responses of returns and volume of trade in regard to Employment Situation and FOMC. These responses are found by using two fixed effects dynamic panel regression models capturing the effect of announcements as events. Positive responses of returns are spotted for 10min and 15min after Employment and FOMC releases respectively. Negative responses of volume are found for 5min, 10min and 15min after both releases while positive responses are found after 60min for both releases. The latest may imply a possible inherent characteristic of short-term response of volume of trade to announcements.

Key words*: U.S. Treasury market, economic announcements, EMH, informational flows, trading dynamics, clustering effects, fixed effects regressions, event study*

Σύνοψη

Η παρούσα εργασία εστιάζει στη σχέση των προγραμματισμένων οικονομικών ανακοινώσεων που αφορούν στην οικονομία των Η.Π.Α. και της δυναμικής (trading dynamics) του δεκαετούς αμερικάνικου ομολόγου. Το δείγμα των δεδομένων περιλαμβάνει τα ημερολόγια των αμερικάνικων οικονομικών ανακοινώσεων και παρατηρήσεις υψηλής συχνότητας (minute-by-minute) οι οποίες, περιγράφουν τη δυναμική του δεκαετούς αμερικάνικου ομολόγου, από τις 4 Ιανουάριο 2012 έως τις 31 Δεκεμβρίου 2014. Ερευνούμε ποιες ανακοινώσεις επηρεάζουν τη συγκεκριμένη αγορά ειδικά σε ημέρες όπου παρατηρούνται σοκ στις αποδόσεις (returns), ακραίες τιμές στη μεταβλητότητα της αγοράς (price volatility) και μέγιστες τιμές στον όγκο συναλλαγών (volume of trade) και στις αλλαγές της τιμής (tick count) του ομολόγου, ανά λεπτό. Η πρωτοτυπία της παρούσας έρευνας έγκειται στο ότι δεν χρησιμοποιούνται δεδομένα εκτιμήσεων/προβλέψεις (expectational data/forecasts) των προγραμματισμένων ανακοινώσεων, μια συνήθης πρακτική σε αντίστοιχες έρευνες. Τα ευρήματά μας περιλαμβάνουν ημερήσια μοτίβα στη δραστηριότητα του ομολόγου τα οποία, συνδέονται με τη δημοσίευση ανακοινώσεων και την ημερήσια λειτουργία της συγκεκριμένης αγοράς. Ακόμα, εντοπίζουμε 10 ανακοινώσεις ως σημαντικές για όλες τις μεταβλητές της δυναμικής του δεκαετούς ομολόγου. Συγκεκριμένα, ως προς την περιοδικότητα των ανακοινώσεων βρίσκουμε 2 εβδομαδιαίες, 6 μηνιαίες, μια που δημοσιεύεται 8 φορές το χρόνο και μια ανακοίνωση που δημοσιεύεται 2 φορές το μήνα. Ως προς το περιεχόμενό τους αυτές οι ανακοινώσεις αφορούν: 4 σε χρηματοοικονομικά μεγέθη, 4 σε μεγέθη της οικονομικής δραστηριότητας και 2 σε μεγέθη που εκφράζουν προσδοκίες. Ένα ακόμα σημαντικό εύρημα είναι ότι οι ανακοινώσεις που εντοπίζουμε ως σημαντικές προέρχονται κυρίως από δημόσιους οργανισμούς/θεσμούς (8 από τις 10). Επιπλέον, παρατηρούμε φαινόμενα ομαδοποίησης (clustering effects) των ακραίων τιμών στις μεταβλητές που εξετάζονται. Συγκεκριμένα, παρατηρούμε ότι οι μέγιστες τιμές στον μέσο ημερήσιο όγκο συναλλαγών και στη μέση ημερήσια μεταβολή της τιμής εμφανίζονται σε διαδοχικές ημέρες. Τέλος, χρησιμοποιώντας δύο fixed effects μοντέλα παλινδρόμησης παρατηρούμε τις αποκρίσεις των αποδόσεων και του όγκου συναλλαγών ως προς δύο σημαντικές ανακοινώσεις (Employment Situation και FOMC). Τα μοντέλα εκτιμούν την επίδραση των ανακοινώσεων στις δύο μεταβλητές του ομολόγου ως απλών γεγονότων, για τέσσερα διαφορετικά χρονικά παράθυρα. Παρατηρούμε θετικές αποκρίσεις της απόδοσης για τα χρονικά παράθυρα των 10min και 15min για την ανακοίνωση Employment και την ανακοίνωση FOMC, αντίστοιχα. Επίσης παρατηρούμε αρνητικές αποκρίσεις στον όγκο των συναλλαγών και για τις δύο ανακοινώσεις στα χρονικά παράθυρα 5min, 10min και 15min ενώ, παρατηρούμε θετική απόκριση της ίδιας μεταβλητής για το παράθυρο των 60min και στις δύο περιπτώσεις. Το τελευταίο εύρημα είναι πιθανόν να υποδηλώνει ένα εγγενές χαρακτηριστικό της βραχυπρόθεσμης απόκρισης του όγκου συναλλαγών στις ανακοινώσεις γενικά.

Λέξεις κλειδιά: *U.S. Treasury market, economic announcements, EMH, informational flows, trading dynamics, clustering effects, fixed effects regressions, event study*

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Brief overview

The role of informational flows for the formation of assets prices remains an open question, a field for research, despite the extensive literature concerning this issue. For finance it is crucial to explore the factors that affect asset prices for various reasons such as underastaning of asset markets, asset price modeling and risk management.

The current dissertation aims to contribute to this crucial subject by reviewing the fundamental aspects of the relevant literature and by examining the trading dynamics of the 10-year U.S. Treasury bond using high-frequency data of price and trading variables and economic announcement calendars. The structure of the study is as follows:

Chapter 1 introduces the aim and importance of the current research.

Chapter 2 reviews the literature concerning the relation of announcements and asset prices while it focuses on the U.S. Treasury market.

Chapter 3 presents the data uncer examination, the basic hypothesis and the method of analysis. Results are also presented in this section.

Chapter 4 presents and discusses findings and

Chapter 5 summarizes our work and discusses on further developments.

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1. Introduction

The aim of the current dissertation is to contribute to the corpus of the literature concerning the impact of economic news/information on the trading dynamics of financial assets. The study is focused on a single security market, the 10y U.S. Treasury bond, and examines the response of different trading dynamics variables to scheduled U.S. economic announcements of various periodicities. The U.S. Treasury securities market is generally considered very important due to its functions and its role as a benchmark for other financial instruments, such as futures or corporate bonds, and due to their use for hedging (Fleming, 2000; Bollerslev, Cai, & Song, 2000; Christiansen & Ranaldo, 2007). The period under examination extents from 4 January 2012 to 31 December 2014. We are interested in finding which U.S. scheduled economic announcements are important for this market. We follow the "tradition" of event studies which seem to be the only to provide the most direct evidence on market efficiency (Fama, 1991).

An important feature of the study is that without using expectational data/forecasts, we manage to infer announcements that are relevant and significant for the 10y U.S. Treasury bond while we also examine the impact of announcements on that market as simple events. We confirm aspects of the relevant literature but we also present some new insights for further research, based on an extensive descriptive analysis of our data sample.

The backbone of our method is the use of shocks in returns (≤-0,2% and ≥0,2%), extremes in range-based price volatility (10 times the mean value of the variable) and monthly and weekly daily mean maximums of volume of trade and tick count (changes of price per minute), to explore which of the expected announcement of indicators, surveys, estimations or projections made by public and private agencies, may be significant for the market under consideration. We assume that if an announcement is significant then it must be present more frequently than other announcements in such cases.

Our study begins with a review of the main subjects and research questions of the discussion concerning financial markets, information flows and the Efficient Market Hypothesis while we also focus on the studies concerning the U.S. scheduled announcements in regard to the U.S. Treasury bond market.

Then we present our data and the results of analysis. Furthermore, we estimate two different regressions for returns and volume of trade in different time windows for two significant announcements. We try to explore the impact of announcements on returns and volume of trade without surprises but simply as events. Due to the panel character of the data we use fixed effects regressions.

Our findings include announcements that are significant for the 10y Treasury market under our assumptions and certain regularities of the trading day; we find that public agencies announcements seem more important than private agencies announcements; we discover clustering effects of price volatility, volume of trade and tick count and we trace the impact of two significant announcements on returns and volume of trade, without using expectational data/forecasts.

2. Review of literature

2.1 Financial markets, information and the Efficient Market Hypothesis

The fundamental question of finance: "what drives the asset prices?" still remains open while it raises a series of other questions which create a framework of the basic research interests in finance. Past prices and information flows are the field where the research is looking for answers (Fama, 1969; Fama, 1991). However, when we deal with this general question it is impossible to tackle it down without determining and defining certain parameters of the problem:

First, an assets market must be determined i.e. stocks, bonds, futures, options, commodities, exchange rates, indices, derivatives etc. Additionally, financial instruments vary inside a market, e.g. bonds of different maturity or different stocks. Such determination is important as the literature maintains that different news are regarded as important for different asset markets (Fleming & Remolona, 1997; Baltuzzi, Elton, & Green, 1996; de Goeij & Marquering, 2006; Gilbert, Scotti, Strasser, & Vega, 2016; Hardouvelis, 1988; Andersen, Bollerslev, Diebold, & Vega, 2007).

Second, the time-frame of examination must also be determined. This is due to the fact that different announcements (a type of information) are regarded important at different periods (Fleming & Remolona, 1997; Christiansen & Ranaldo, 2007). This implies that the impact of an announcement on price is determined by the business cycle and the general macroeconomic environment known as fundamentals. For instance, it is documented that price response and trading activity to a given announcement is usually greater under conditions of increased uncertainty (Fleming & Remolona, 1997). In addition, the time frame is also indicative of the investors' "bullish" or "bearish" sentiment, given that the mixture of "optimism" and "pessimism" or "risk-aversion" and "risk-seeking" in the markets is very important in explaining asset price fluctuations.

Third, the interaction among the different markets should also be taken under consideration when analyzing price fluctuations (Evans, 2011; Andersen, Bollerslev, Diebold, & Vega, 2007; Kim, McKenzie, & Faff, 2004). This claim is supported by the fact that investors tend to create diversified portfolios which contain assets from different markets (e.g. long-term or short-term assets) in order to achieve higher returns and minimum losses (Pilbeam, 2005).

Fourth, market expectations are based on information flows which are crucial for their formation. These information flows comprise publicly available information such as public companies data, changes in dividend policy, announcements of merges and acquisitions, announcements of official institutions, officials' statements, think tanks bulletins or even columns of newspapers and magazines, blogs of finance specialists, tweets and even popular search keywords in Google, among others. Moreover, information flows may additionally include "inside tips", monopolistic access to data, in general private information.

Early efforts in explaining price movements concentrated their attention solely on past prices (see, for instance, Bachelier, 1900; Osborne, 1959; Mandelbrot, 1963). As research was progressing, authors incorporated in their models past prices of exogenous variables, such as volume of trade, bid-ask quotes and publicly available information (see, for instance, Cuttler, Poterba, & Summers, 1989; Fama, 1969; Engle & Victor, 1993; Flemming & Remolona, 1999).

The research and the empirical tests concerning these matters revolve around the concept of the Efficient Market Hypothesis (EMH), as it was coined by Eugene Fama. In an efficient market prices 'fully reflect' all available information at any point of time (Fama, 1969), which suggests that markets are unpredictable. Ideally, a market is

efficient when no one can use any kind of information (historical prices, public or private information) that would give her the ability to make consistent excess returns, i.e. to constantly beat the market. In order for the market efficiency to hold, it is assumed that at every moment the price of an asset reflects the equilibrium value between seller and buyer. Fama (1969) argued, though, in favor of three forms of market efficiency, which corresponds to the different types of the information set:

1. *Weak efficiency*: In the weak form of market efficiency the information set comprises historical prices. This form is well evidenced and it implies that the current asset prices fully and instantly reflect their own past price movements. Consequently, past prices cannot produce a prediction of future prices or returns for making consistent excess profits (martingale model and random walk hypothesis).

   However, some anomalies have been spotted such as the *January effect* and the *winner-loser problem* (Thaler, 1987; De Bondt & Thaler, 1985). These anomalies describe weak-form inefficiencies in regard to certain stocks returns: relatively high returns on small companies stocks in January, compared to other months and inversion of certain stocks returns from low to high and vice-versa with a certain periodicity. Both of these anomalies refer to seasonal patterns.

   Nevertheless, these anomalies can be explained by the way fund-managers tend to present their portfolio to their investors which and the various asset pricing methods (Fama, 1991).

2. *Semi-strong efficiency*: In this case, the information set includes historical prices plus all publicly available information. Most of the studies which try to find evidence in favor or against this level of efficiency focus on announcements' impact on asset prices (such as dividends, earnings, etc). Certain anomalies such as the *size-effect* or the *price-earning effect* have been reported for this type of efficiency (Banz, 1981; Basu, 1977). These first anomaly shows that a stock's size (price times shares) can be used for explaining expected returns; given their market β's, expected returns on small stocks are too high, and expected returns on large stocks are too low. The second anomaly shows that expected returns are positively related to the Earnings/Price ratio. Although these findings seem to challenge the EMH, other studies argue that the sources of the anomalies can be the estimation methods of β's and the asset pricing models (see the review of Fama, 1991)

   We should highlight here that studies which contradict the weak or the semi-strong form of market efficiency do not necessarily reject EMH, but as Fama puts it, help towards "*the categorization of the tests […] will serve the useful purpose of allowing us to pinpoint the level at which the hypothesis breaks down"* (Fama, 1969, p.388)

3. *Strong efficiency*: In this case, the information set comprises historical prices, public and private information. This form of efficiency is weak evidenced; we cannot have a realistic proxy of information obtained through inside or exclusive networks. There is only indirect evidence for tracing informational disequilibrium (Kurov, Sancetta, Strasser, & Halova Wolfe, 2016) and as Pilbeam writes*: "the well-publicized prosecutions of insider traders who have made fortunes as a result of dealing form inside knowledge is, at the end of the*

day, perhaps the most significant evidence against the strong-form of market efficiency" (Pilbeam, 2005, p.266).

While it is widely documented that the arrival of "news" affects the formation of asset prices more issues arise from this fact (Flemming & Remolona, 1999; Gilbert, Scotti, Strasser, & Vega, 2016; Goeij & Marquering, 2006; Green, 2004; Gilbert, Scotti, Strasser, & Vega, 2015):

i. Is new information instantaneously absorbed into an asset's price?
ii. What is relevant and what is irrelevant information?

These questions are implying:

a. the ways information is processed by markets
b. the informational content or intrinsic value in regard to a certain market,
c. the link between fundamentals and asset prices.

These matters point directly at the *speed*, the *size* and the *sign* of the impact of information on prices and trading dynamics in general. Of course, EMH is ideal in its pure form and real trading does not instantaneously incorporate new information input. The speed at which the information is absorbed and then reflected to the prices is a matter under study and the answers include daily patterns in the behavior of daily trading activity and volatility of returns, puzzling anomalies and of course bubbles and crashes (Flemming & Remolona, 1999; Pilbeam, 2005)

From an investor's or a trader's point of view those time windows during which the new informational input makes the price to fluctuate until it reaches a new (temporarily) stable point (mean) can become a source of profit. The way in which information input is processed affects the size of the impact i.e. the range of this fluctuation. Engle (Engle & Victor, 1993) refers to *news intensity* in order to explain the effects of market volatility, such as clustering in time. Asset markets may present over- or under-reaction to new informational input though not consistently (Morris & Shin, 2002). In addition, there is evidence that markets respond asymmetrically to "good" or "bad" news. Known as the *leverage effect*, market volatility tends to rise in response to "bad news" and to fall in response to "good" news. This empirical rule implies that when information is perceived as "good/positive" for a certain market the fluctuation of prices is mild compared to "bad/negative" news perception which produces larger/more unexpected fluctuations (Engle & Victor, 1993; Green, 2004; Degianakis & Xekalaki, 2004).

Turning our focus to the informational value[1] we examine which announcement affects which asset market. Even when we manage to trace the announcements which really matter, we still have to explain why the impact of an announcement on a certain asset may vary through time. The latter involves questions about timing, relation to fundamentals and noise (Fleming & Remolona, 1997). In particular, the impact of an announcement may vary over different periods of time depending on other developments in the economy. For instance, the impact of unemployment rate releases on interest rates depends on the exiting level of unemployment (Prag, 1994). Moreover, timing is an important parameter for the size of an announcements impact on asset prices. For example GDP estimation releases have stronger impact than GDP final

1 The term informational value describes importance of certain information for a certain market. This importance is due to the informational content but even to the source of information.

releases (Gilbert, Scotti, Strasser, & Vega, 2016). Finally, there are many potential sources of noise in the data such as the use of expectational data, overlapping of announcements, revision of announcements, the frequency of the variables under examination and even social or political events that affect financial markets (Rigobon & Sack, 2008; Morris & Shin, 2002; Gilbert, Scotti, Strasser, & Vega, 2016).

In more recent studies there are attempts to measure the informational content/value of an announcement by its forecasting ability (Gilbert, Scotti, Strasser, & Vega, 2016). In general, the response of the market induced by announcements depends on the informational environment. In the words of Robert J. Shiller: "*Significant market events generally occur only if there is similar thinking among large groups of people, and the news media are essential vehicles for the spread of ideas*" (quoted in Morris & Shin, 2002, p.1521).

Furthermore, there are certain attempts to explain the sign of the response. This is a question of positive or negative correlation of the asset prices movement in regard with the movement of an announced indicator (Balduzzi, Elton, & Green, 2001; Flemming & Remolona, 1999). The sign of the response is pointing to business cycle theory and economic policy making. For instance, equity markets present different response to news depending on the stage of the business cycle while pro-cyclical and counter-cyclical announcements have different impact on prices (Balduzzi, Elton, & Green, 2001; Andersen, Bollerslev, Diebold, & Vega, 2007).

Fama in his second review of the EMH returns to the original ideas under the light of new research (Fama, 1991). On the one hand he stresses out the practical usefulness of EMH rather than its pure form accuracy. On the other hand he is emphasizing the context in which market efficiency should be tested i.e. a pricing model (a.k.a. a model of market equilibrium). Moreover, Fama revises the forms of efficiency so as to adjust theory to new research results and to real markets behavior.

Weak-form efficiency is replaced by *tests for return predictability*, semi-strong form is renamed as *event studies* and instead of strong-form efficiency Fama suggests the term *tests for private information* (Fama, 1991). In short, only event studies seem to provide the most direct evidence on market efficiency, while tests for return predictability and tests for private information are controversial. This insight is supported by the extensive work which is reviewed in Section 2.3. Hence, event studies are the most common tools in the literature concerning the effects of public economic announcements on asset prices.

Last but not least, the discussion about information and financial markets efficiency includes a crucial issue, namely, the financial bubbles and crashes. Financial collapses may not be frequent in comparison to the everyday operation of financial markets, though they cannot be ruled out due to their historical recurrence. Only to mention that between 1987 and 2008 there were 15 major bubbles, collapses and crises in various parts of the financial markets (stock markets, derivative markets, sovereign debt markets, house market etc.) from New York to Tokyo and from Copenhagen to Athens (Pilbeam, 2005; Kindleberger & Aliber, 2005; Sornette, 2003). Financial risk may lead to a slight loss or to a massive failure of financial institutions. That is why risk is becoming central in financial theory and research since the 1990s (Engle, 2004). The existence of unsustainable price patterns which lead to collapse contradicts the theory of market efficiency despite the explanations put forward by proponents of EMH known as the *"rational bubble" argument* and the *news argument* (Pilbeam, 2005). More and more, financial collapse is being understood as an inherent characteristic of financial markets. As Mandelbrot argues financial markets are turbulent and very risky,

characterized by wild randomness while bubbles are considered inevitable events (Mandelbrot, 2008).

Assets prices formation in regard to information remains a fundamental research topic. Despite the numerous studies and the theoretical context of the Efficient Market Hypothesis, the main questions concerning the way markets process and reflect information on asset prices are still under examination due to the increasing complexity of financial markets and due to the multiple sources of information flows. Although the literature has provided a series of results that construct a consensus among the researchers, there are controversies and open questions that continue to draw our efforts for understanding the way markets and information flows interact.

2.2 Economic announcements and the U.S. Treasury bond market

While public information has been recognized as a factor of asset prices formation, the extent to which market movements can be attributed to new information remains an issue under examination for more than three decades. There are several studies concerning this matter starting at late 1980s, such as Hardouvelis, 1988; Cuttler, Poterba, & Summers, 1989; Engle & Victor, 1993; Fleming & Remolona, 1997. Their main purposes are to differentiate between relevant and irrelevant economic news in regard to a specific financial market and to measure the impact of relevant announcements on the various parameters of trading dynamics such as prices/returns/yields, trading volume, trading surges and market volatility.

Markets that have been extensively studied include stocks and stock indices, sovereign bonds, interest rates, foreign exchange rates, and various future contracts. Most of the literature is focused on the relation of scheduled U.S. economic announcements and asset prices. However, more recent research includes announcements from other significant economies such as China, Japan, or EU (Baum, Halova, & Kurov, 2013; Goldberg & Leonard, 2003; Baum, Kurov, & Halova Wolfe, 2015).

The U.S. Treasury securities market is a subset of capital markets and it is considered very important due to its functions and its role as a benchmark for other financial instruments, such as futures or corporate bonds, and due to their use for hedging (Fleming, 2000; Bollerslev, Cai, & Song, 2000; Christiansen & Ranaldo, 2007). It is one of the largest financial markets and also one of the most active around the world (Balduzzi, Elton, & Green, 2001; Bollerslev, Cai, & Song, 2000). In 2015, the outstanding U.S. Treasury debt reaches 13,191bn$ while the average monthly U.S. Treasuries trading volume is 492.2bn$[2]. The US Treasury securities market represents a large portion of the U.S. national debt and it is heavily depended on the overall performance of the U.S. economy. The relevant literature shows that the U.S. Treasury bond market is significantly affected by the U.S. economic announcements associated with real output, prices and monetary policy (Beechey & Wright, 2009; Fleming & Remolona, 1997; Balduzzi, Elton, & Green, 2001) compared to other markets (e.g. the stock market). However, it is documented that the impact of announcements depends on the period under examination. For instance, money supply announcements were considered significant form the late 1970s to the mid-1980s while studies during the 1980s and in the 1990s present inflation announcements and employment announcements as more important (Fleming & Remolona, 1997; Baltuzzi, Elton, & Green, 1996). In addition, studies in the 2000s show an increasing importance of

2 The data were obtained by Securities Industry and Financial Markets Association (SIFMA)

advance readings of GDP, reports/surveys on consumers and investors sentiment and nowcasting indicators in regard to price formation (Goldberg & Leonard, 2003; Bollerslev, Cai, & Song, 2000; Bartolini, Goldberg, & Sacarny, 2008). Leading indicators are more important than lagging indicators because the latter describe economic changes that have already occurred, while the former represent market agents' expectations. Announcements that express forecast or expectation are market motivating indicators in comparison to announcements that confirm an economic turn or record economic circumstances that have already occurred. For example, GDP final announcements have a poor impact on asset prices compared to GDP estimations (Gilbert, Scotti, Strasser, & Vega, 2016; Giannone, Reichlin, & Small, 2008).

On the following section we review the literature concerning the impact of economic announcements on the U.S. Treasuries market and we summarize the framework of the research and the main results.

2.3 Review of studies on the U.S. Treasuries bond market

2.3.1 General framework

We can summarize the main research questions of the literature concerning the U.S. bond market as follows:

1. Which announcements are important for the U.S. Treasury market?
2. To what extent the movements of bond prices can be explained by the arrival of economic news?
3. Are there any patterns of market movements that can be attributed to economic news?

The relevant literature provides answers on these fundamental questions by examining a variety of aspects of the market dynamics. The most influential studies for the U.S. Treasuries market which were conducted from the mid-1990s to the early 2000s include the work of: (Baltuzzi, Elton, & Green, 1996; Fleming & Remolona, 1997; Balduzzi, Elton, & Green, 2001; Jones, Lamont, & Lumsdaine, Macroeconomic news and bond market volatility, 1998; Flemming & Remolona, 1999; Flemming M. , 1997; Baltuzzi, Elton, & Green, 1996). These studies provide the framework for tracing the impact of announcements on the U.S. bond market. Particularly, the impact of announcements on price, volume of trade and bid-ask spreads is examined by:

i. measuring the speed of the impact,
ii. measuring the size of response,
iii. measuring price or returns volatility,
iv. exploring the presence of intraday patterns,
v. associating sharpest price changes and trading surges with certain releases,
vi. studying whether market conditions/business cycle affects the informational value of announcements (the sign of response).

These papers have introduced two key features of event studies. The first is the use of regressions of price volatility on dummy variables in order to discover the markets' differentiation between various types of announcements. In other words, to determine which announcements affect the market in a consistent and systematic way. A typical example of this regression model is:

$$Y_{n,t} = a_0 + \sum_{t=1}^{T-1} a_t D_t + \sum_{k=1}^{K} b_k D_{k,n,t} + \varepsilon_{n,t}\,, \quad (1)$$

where:

i. $Y_{n,t}$ is the volatility of price, the absolute value of the change in log prices in a time interval following an announcement. Prices are taken as the mid-point of bid-ask quotes.
ii. $D_{k,n,t} = 1$ if announcements k is made on day n just before interval t and $D_{k,n,t} = 0$ otherwise.
iii. b_k measures the impact of the announcement.
iv. D_t is a dummy variable for controlling intraday patterns of price volatility.
v. T is the number of different intervals corresponding to the release times of the announcements and K is the number of announcements.

The most important feature introduced in the above studies is known as the *surprise of information* or the *surprise component*. The surprise component is defined as the difference between forecast/expectation and the actual number released during an announcement. This is theoretically explained by the hypothesis that a market should respond not only to the event itself (announcement release) but to the *unexpected* part of the information released during an event (Fleming & Remolona, 1997; Balduzzi, Elton, & Green, 2001). So, the surprise is described as:

$$S_{i,j,t} = A_{i,j,t} - F_{i,j,t}, \quad (2)$$

where $A_{i,j,t}$ is the actual number released in announcement i on day j at time t and $F_{k,n,t}$ is the forecasted value. Usually, the $S_{i,j,t}$ is standardized by dividing with their standard deviation across all observations due to the fact that units of measurements differ across economic announcements. Then, depending on the measure under examination various regression models on surprises have been implemented. A typical example is the following (index j is omitted):

$$\frac{P_{a,i,t} - P_{k,i,t}}{P_{k,i,t}} = \beta_{0,i} + \beta_{1,i} S_{i,t} + \sum_{m=1}^{M} \beta_{m+1,i} S_{i_m,t} + \varepsilon_{i,t} \quad (3)$$

where:

i. $P_{a,i,t}$ and $P_{k,i,t}$ are the prices α minutes after and k minutes before the announcement i at time t. (Prices can be measured as the average between bid-ask quotes or the close per minute value).
ii. $\beta_{1,i}$ is the sensitivity of the price to the announcement.
iii. $S_{i,t}$ is the standardized surprise in announcement i.
iv. m denotes the m^{th} announcement concurrent with announcement i and M is the total number of concurrent announcements.
v. $S_{i_m,t}$ is the standardized surprise in the m^{th} announcement concurrent with announcement i at time t.
vi. $\beta_{m+1,i}$ is the sensitivity of the price to the m^{th} announcement concurrent with announcement i.

The use of expectational data in the regression allows for discriminating between simultaneous announcements (Balduzzi, Elton, & Green, 2001; Baltuzzi, Elton, & Green, 1996). It must be noted that most of the literature focuses on post-announcement effects. A crucial matter is the time-window (a, k) of the regression models. Short and long-term effects of announcements are occurring in different time windows. Most studies use time-windows between 5 to 40 minutes around the release. (e.g $a = -5min$ and $k = +30min$), therefore short-term effects are captured.

It is notable that the surprise component is also used for measuring the precision/noise of an announcement (Gilbert, Scotti, Strasser, & Vega, 2016; Gilbert, Scotti, Strasser, & Vega, 2015) and for finding the speed of impact (Balduzzi, Elton, & Green, 2001).

Daily changes of prices, price volatility and jumps, daily excess returns (Brazys & Martens, 2014; de Goeij & Marquering, 2003; Dungey, McKenzie, & Vanes, 2009; Jones, Lamont, & Lumsda, 1998; Andersen, Bollerslev, Diebold, & Vega, 2007) price adjustment processes (Bollerslev, Cai, & Song, 2000; Flemming & Remolona, 1999), patterns of trading volume (Baltuzzi, Elton, & Green, 1996; Flemming M. , 1997) are also examined in regard to announcements, in the relevant literature, in order to trace the impact and the significance of certain information on the market.

The announcements used in the relevant studies are scheduled U.S. economic indicators releases which can be categorized according to two criterions:

a. Time
    i. The periodicity of an announcement (weekly, monthly etc) but also
    ii. the leading or lagging character of the announcement
b. Informational content:
    i. Monetary Policy (price indices)
    ii. Growth (real activity, investment, labor market, consumption indices)
    iii. Sentiment/Expectation (forward looking indices, projections, surveys)

The number of US scheduled announcements used in the studies varies roughly from 3 to 60 while in most cases 20 to 30 announcements are initially under examination in order to discriminate those with the most significant impact on the market dynamics. More recent studies tend to use announcements (less than ten), which have been repeatedly reported as statistical significant and with high explanatory power.

Finally, the data mostly used in the literature are high frequency (minute-by-minute observations). The time interval of the data samples vary from 2 to 15 years, most of them use an interval of 8 to 10 years, while the periods extent from the late 1980s to the mid-2000s. It must be mentioned that the majority of the literature apart from actual data also uses expectation/forecasted data.

2.3.2. Main findings

Below we present the main results of the relevant literature by reviewing studies that include in their examination securities of the U.S. T-bond market in regard to U.S. scheduled economic announcements. The main findings can be summarized as follows.

The U.S. T-bond market is considered to have strong reaction to U.S. economic releases. This reaction is documented to be more intense especially around releases. The impact of certain announcements on prices is well documented although the results vary among the studies. The reasons for that are: (a) different samples, (b) different time-windows around the announcement and (c) variations of the typical regression model (d) different levels of confidence. In few cases, the explanatory power of the surprise component for the most significant announcements reaches 50% or even 60% at a 1%

level of confidence while an average range is 25-35% at the same level of confidence for bond price variations. Similar results are provided in studies that examine the impact of announcement surprise on daily bond returns (de Goeij & Marquering, 2006; de Goeij & Marquering 2003; Kim, McKenzie, & Faff, 2004; Balduzzi, Elton, & Green, 2001; Fleming & Remolona, 1997; Bartolini, Goldberg, & Sacarny, 2008; Gilbert, Scotti, Strasser, & Vega, 2015).

It must be noted that estimations of the coefficients of the regressions models used, usually indicate the average difference in a certain variable (e.g. volume of trade or price volatility) for the same period after an announcement as compared with the same period on non-announcement days.

Shocks in prices and surges in volume of trade which alternatively can be seen as volatility jumps can be partially attributed to announcement releases (de Goeij & Marquering, 2003; Dungey, McKenzie, & Vanes, 2009; Baltuzzi, Elton, & Green, 1996; Bollerslev, Cai, & Song, 2000).

Market conditions and especially market uncertainty influence the informational value of releases (Green, 2004; Flemming & Remolona, 1999; Kim, McKenzie, & Faff, 2004; Smirlock, 1986).

There are documented patterns concerning bond yields, price volatility and trading activity in regard to announcement releases (Baltuzzi, Elton, & Green, 1996; Green, 2004; Flemming & Remolona, 1999; Flemming M. , 1997). However, there is not a clear consensus on this issue due to the different time-frames and samples used in the studies.

While there are differences in regard to which exact set of announcements affects the U.S. securities, the reviewing of the literature points at certain announcements that are repeatedly reported as significant. These announcements are[3]:

i. Employment Situation: it includes the release of Unemployment rate and Non-farm Payrolls.
ii. NAPM index- which is now known as the ISM Index4.
iii. CPI
iv. PPI
v. Retail sales
vi. Durable goods orders
vii. Federal Funds Rates –which is now known as FOMC meeting.
viii. Industrial production
ix. Consumer sentiment
x. Advance readings of GDP
xi. International trade balance
xii. Employment costs

It is also reported that announcement days present higher intraday trading activity and volatility than non-announcement days during the same time interval around announcements (Balduzzi, Elton, & Green, 2001; Flemming M. , 1997).

3 For a detailed account of various economic indicators see Appendix A
4 More accurately a family of indices.

2.3.3 Basic problems of the research

We can trace three major problems in the relevant literature:

a. The problem of concurrent announcements

In many cases, more than one announcement is released simultaneously as in the case of Employment Situation which contains the Unemployment Rate and the Non-Farm Payrolls, reported monthly by the Bureau of Labor Statistics. Both reflect information for the labor market. The most common way is the type of regression (3) where expectational data allows for differentiation of concurrent announcements.

b. The problem of expectational data

The previous problem is contained in the general problem of measuring market expectations. The surprise component is based on expectational data (surveys) which in turn contain errors due to the lag between expectation data and released data, due to poor measurement or other reasons (Bartolini, Goldberg, & Sacarny, 2008; Rigobon & Sack, 2008). Nevertheless, other methods for facing this problem show that using expectational data produces results that underestimate the impact of announcements on bond prices.

c. The problem of correlated announcements

It must be taken into account the fact that various announcements are correlated due to their informational content. For example, Philadelphia Federal Survey is correlated to Industrial Production index as well as ISM manufacturing index. Monster Employment index is correlated with Employment Situation release and NAR PH Sales Index is correlated to Housing Starts as indicators for housing activity.

In the following section we present the data and their analysis. We address the above issues and we try to provide answers. We discuss our results at the final section. In any case, we do not use expectational data but we manage to deliver consistent and well documented results.

3. Data and Analysis

3.1 Data

We use the monthly Economic Policy indicators calendar of the years 2012-2014, obtained by the site of U.S. Department of Treasury. The calendar provides us with the full list of U.S. economic announcements of both public and private sector and their exact time of release.

The sample of announcements consists of 772 trading days. Only 58 trading days do not include announcements. 92.5% of the sample's trading days include at least one announcement. During a month there are 66 to 76 scheduled releases of weekly, monthly, quarterly or other periodicity U.S. economic indicators. The earlier announcement recorded is Monster Employment Index (monthly) at 6:00am and the latest announcement recorded is Auto Sales (monthly) at 5:00pm. 90% of the announcements are released between 7:00am-11:00am. The full calendars of our sample are provided in Appendix B. For the months October-December 2013 we have used the rescheduled calendar.

The data for the 10-year U.S. Treasury bond are collected by Tickdata.com. The time-window is from 4 January 2012 to 31 December 2014. The data sample includes 1,053,353 minute-by-minute observations of the variables (time series) mentioned below:

1. *Volume*: number of buy-sell actions per minute
2. *Tick Count*: number of price changes per minute
3. *High*: highest price of an exchange per minute ($/min)
4. *Low*: lowest price of an exchange per minute ($/min)
5. *Open*: the price with which a minute of trades starts ($)
6. *Close*: the price with which a minute of trades ends ($)

We have also added two new variables:

7. *Pricevolat*: (*High-Low)* is a range based volatility of price per minute.
8. *Returns:* $log(Close_t/Close_{t-1})$ are returns per minute.

Data are processed and analyzed with Eviews and Excel. The descriptive statistics and the correlations of the variables are presented in Tables 1 and 2, respectively.

Table 1: Desciptive statistics

	OPEN	CLOSE	HIGH	LOW	RETURNS	TICK_COUNT	VOLUME	PRICEVOLAT
Mean	128.7572	128.7572	128.7631	128.7513	-2.40E-06	113.9111	745.4920	0.011779
Median	127.5781	127.5781	127.5938	127.5781	0.000000	26.00000	153.0000	0.015625
Maximum	135.4688	135.4844	135.4844	135.4688	0.778260	18026.00	97382.00	1.531250
Minimum	122.2188	122.2188	122.2188	122.2188	-1.236858	0.000000	0.000000	0.000000
Std. Dev.	3.670887	3.670936	3.670940	3.670877	0.010696	237.2784	1615.040	0.014154
Skewness	0.087707	0.087705	0.087572	0.087838	-4.523419	10.12809	8.818722	8.042311
Kurtosis	1.443565	1.443563	1.443555	1.443585	695.3317	338.4370	205.7215	421.0055

Table 2: Correlations

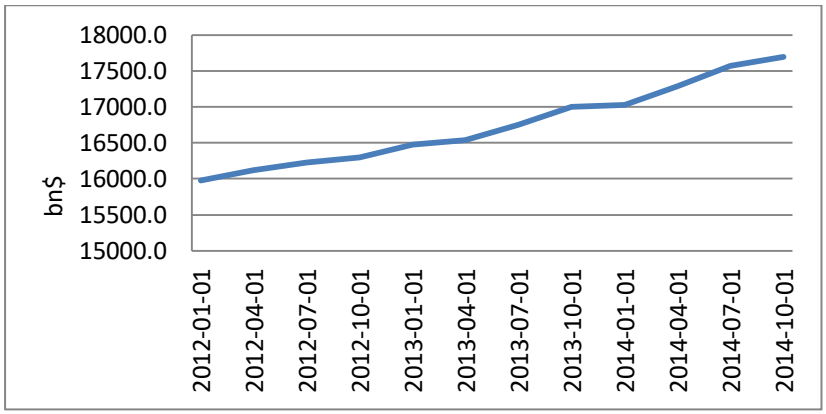
	OPEN	CLOSE	HIGH	LOW	RETURNS	TICK_COUNT	VOLUME	PRICEVOLAT
OPEN		0.999994	0.999996	0.999996	-0.000749	-0.006036	-0.023600	0.004465
CLOSE	0.999994		0.999996	0.999996	0.001877	-0.006040	-0.023600	0.004465
HIGH	0.999996	0.999996		0.999993	0.000465	-0.004691	-0.022306	0.006396
LOW	0.999996	0.999996	0.999993		0.000465	-0.007378	-0.024888	0.002540
RETURNS	-0.000749	0.001877	0.000465	0.000465		-0.000595	0.000995	-1.20E-05
TICK_COUNT	-0.006036	-0.006040	-0.004691	-0.007378	-0.000595		0.946859	0.696759
VOLUME	-0.023600	-0.023600	-0.022306	-0.024888	0.000995	0.946859		0.669722
PRICEVOLAT	0.004465	0.004465	0.006396	0.002540	-1.20E-05	0.696759	0.669722	

Variables that represent price have identical distributions and they are strongly correlated. There is a strong, positive correlation between volume and tick count, a significant correlation between those two variables and pricevolat, while there is insignificant correlation between volume, tick count and pricevolat in regard to variables representing price. Returns have the most insignificant correlation with every other variable.

The 10y T-bond is a long-term asset that represents national debt, it has a fixed rate, pays every six months and it is exempted from taxes. It is considered as a highly volatile investment due to its long-term of maturity and one of the most actively traded treasuries. The 10y Treasury bond has become the security most frequently quoted when discussing the performance of the U.S. Treasuries market and is used to convey the market's take on longer-term macroeconomic expectations.

During the sample period the GDP is slowly rising by 0.92% on average per quarter (real GDP 0.52% on average per quarter), the interest rates are constant at 0.75% and the unemployment rate is falling by 1.1% on average per month[5].

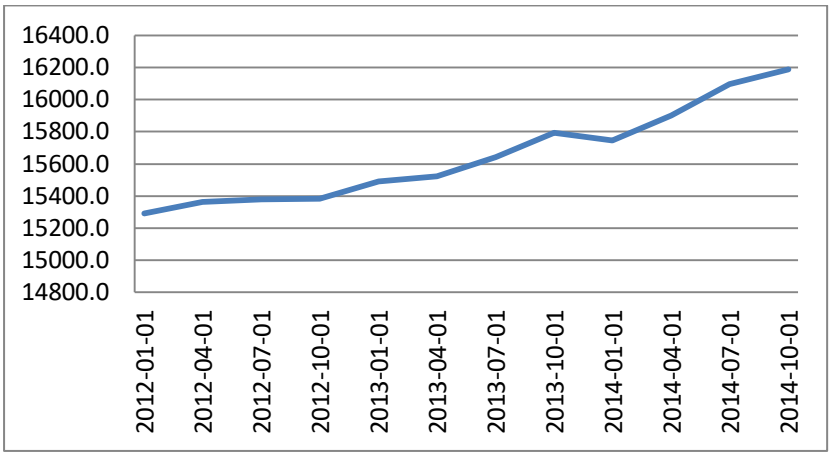
Figure 1: U.S. GDP 2012-2014



Source: the U.S. Bureau of Labor Statistics

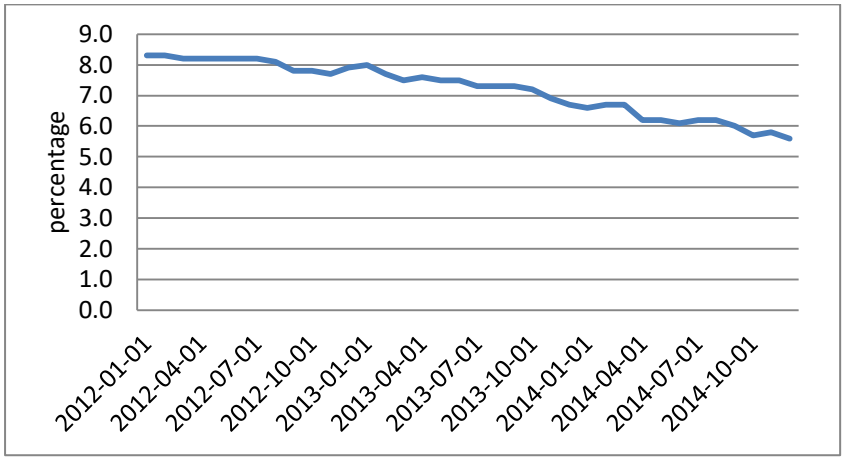
5 Processed data collected by FRED Economic Data (https://fred.stlouisfed.org/)

Figure 2: U.S. Real GDP 2012-2014



Source: U.S. Bureau of Labor Statistics

Figure 3: U.S. Civilian Unemployment Rate 2012-2014



Source: the U.S. Bureau of Labor Statistics

3.2 Hypothesis & Analysis

Our analysis starts with the examination of daily behavior of variables based on the hypothesis that relevant and significant announcements should occur more frequently in critical moments such as shocks in returns and surges in trading activity than irrelevant announcements. The literature reports that a significant number of price sharpest changes and trading surges occur during days when certain releases take place (Fleming & Remolona, 1997; Balduzzi, Elton, & Green, 2001). However, as we have mentioned we follow a different than the usual path of event studies. Instead regressing returns on surprises using different time frames around different announcements, we extract a list of significant announcements by using simple criteria based on shocks and surges of the variables. Then we examine two regression models for two significant announcements for returns and volume using fixed effects models for panel data.

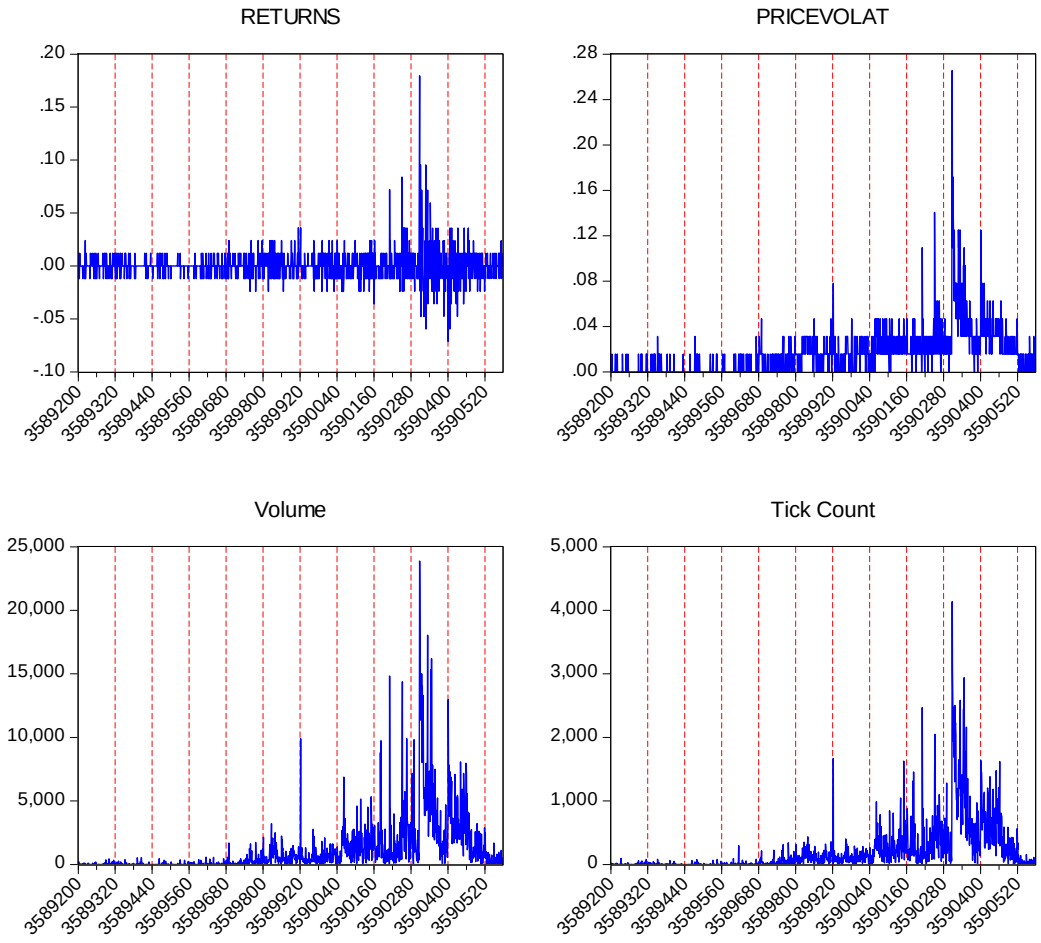
For the daily examination of variables we use descriptive statistics. Particularly we find shocks in returns, maximums of daily mean trading volume and tick count and extremes of range based price volatility. The frequency of occurrence of announcements in days of shocks and surges is the main criterion for finding significant announcements.

For reasons of data analysis we have developed a short algorithm in Eviews environment. Particularly, the algorithm developed has as an input a time series which

represents a certain variable e.g. a month of minute-by-minute observations of volume of trade; and as an output a predetermined number of sets containing equal number of observations from the original time series e.g. daily minute-by-minute observations of volume of trade sets. Moreover it calculates basic statistical parameters of every new sample. The script of the algorithm is presented in Appendix D.

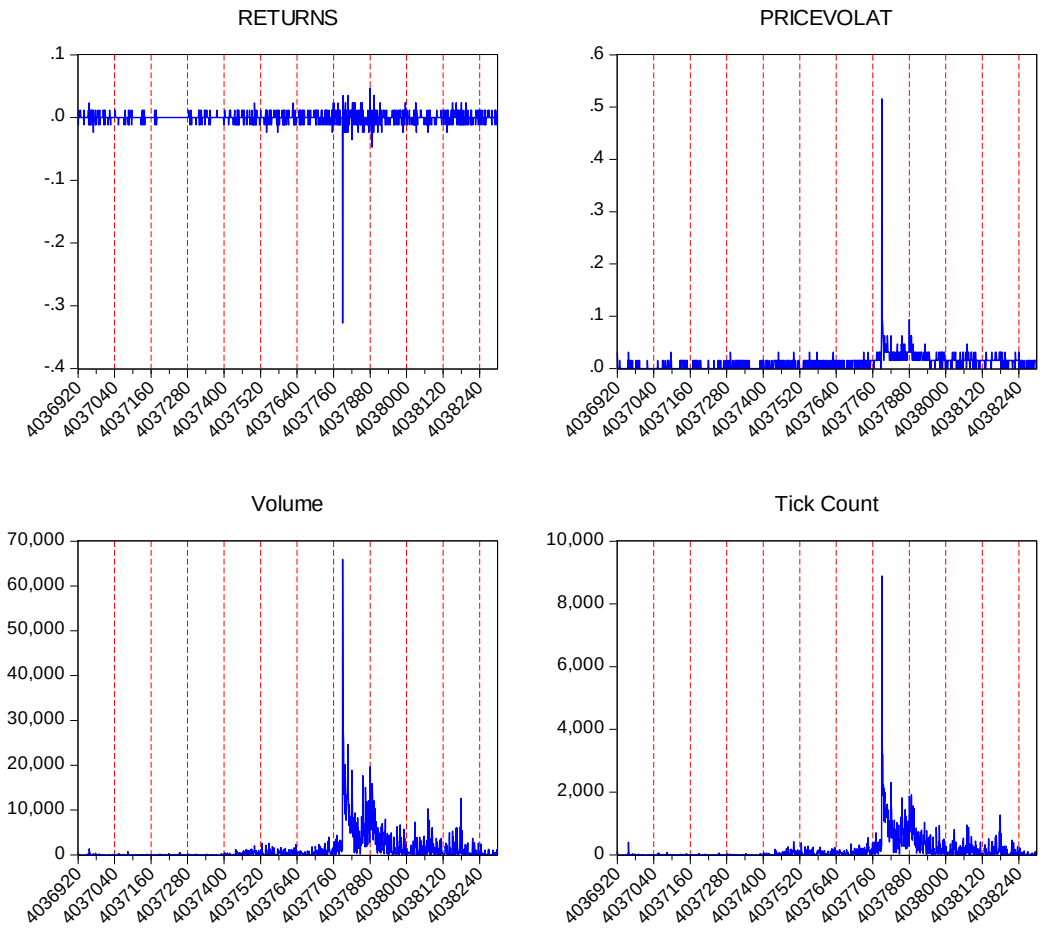
An important reason for this approach is that we observe certain regularities in the daily behavior of variables. For example, we present the following trading days figures 4-10. The horizontal axis represents time in minutes.

Figure 4: January 25 2012, daily behavior of variables



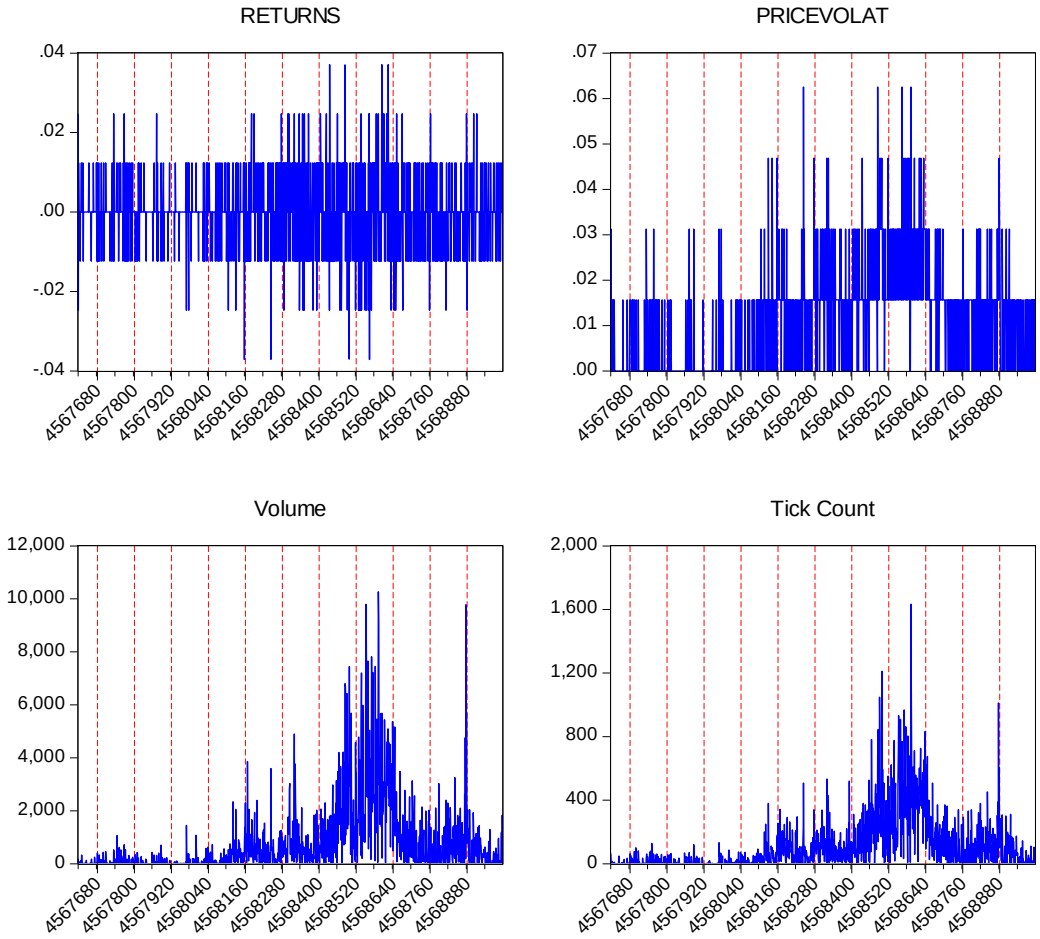
First announcement: 7:00 (3589859). Last announcement: 14:15 (3590294). 5 announcements

Figure 5: : May 23 2013, daily behavior of variables



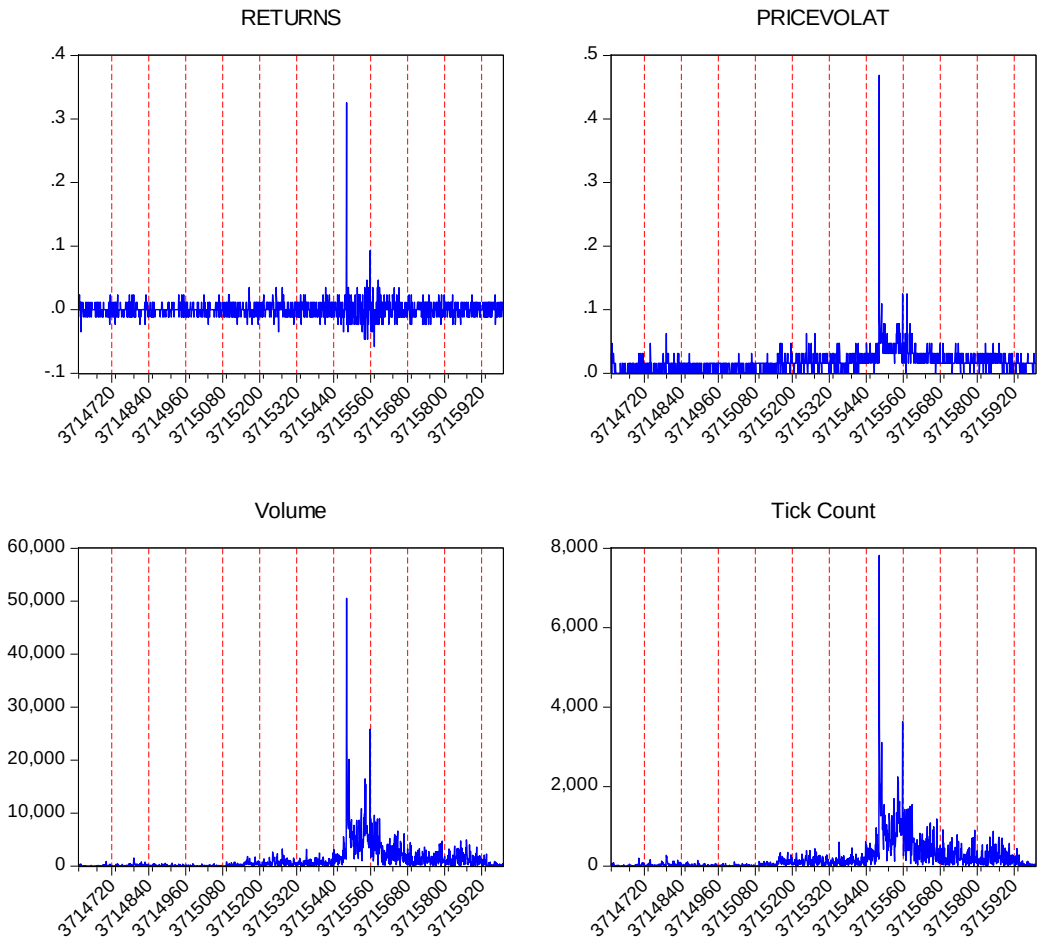
First announcement: 6:00 (4037519). Last announcement: 10:00 (4037759). 4 announcements

Figure 6: November 4 2014, daily behavior of variables



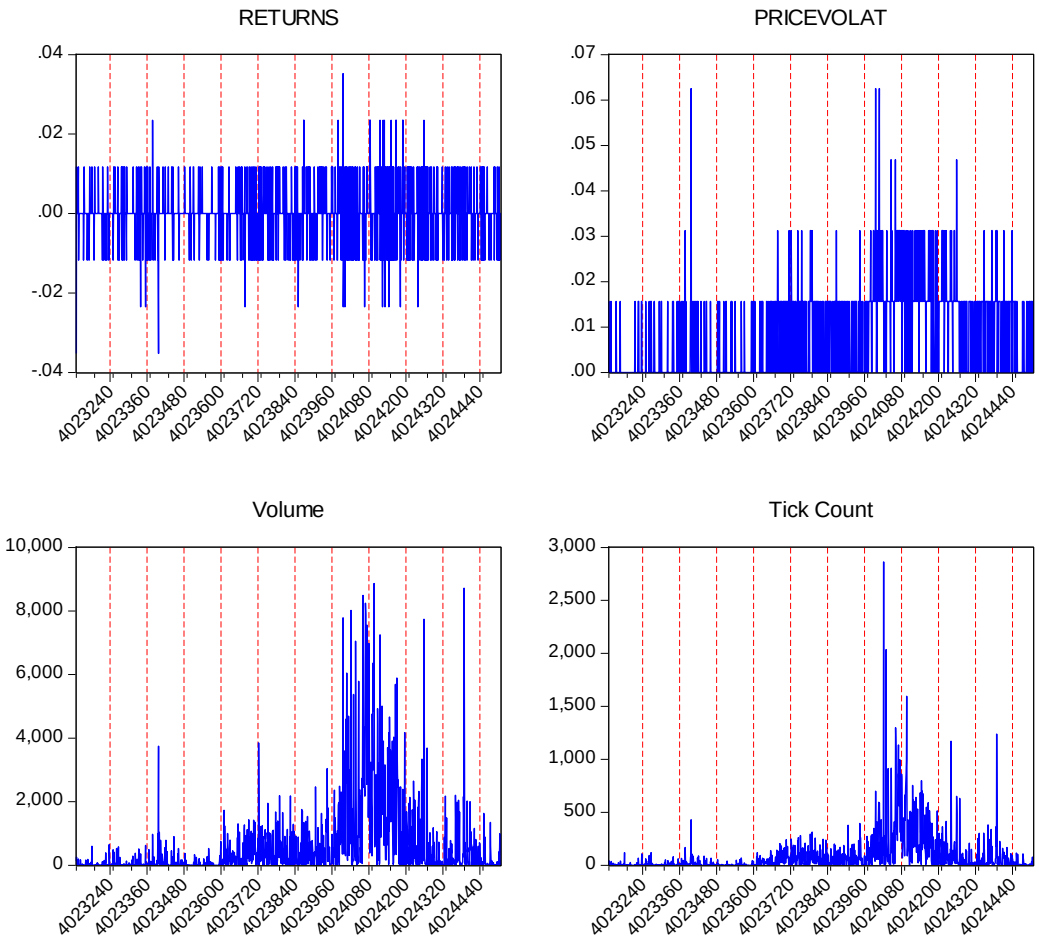
First announcement: 8:30 (4568366). Last announcement: 10:00 (4568456). 2 announcements

Figure 7: June 1 2012, daily behavior of variables



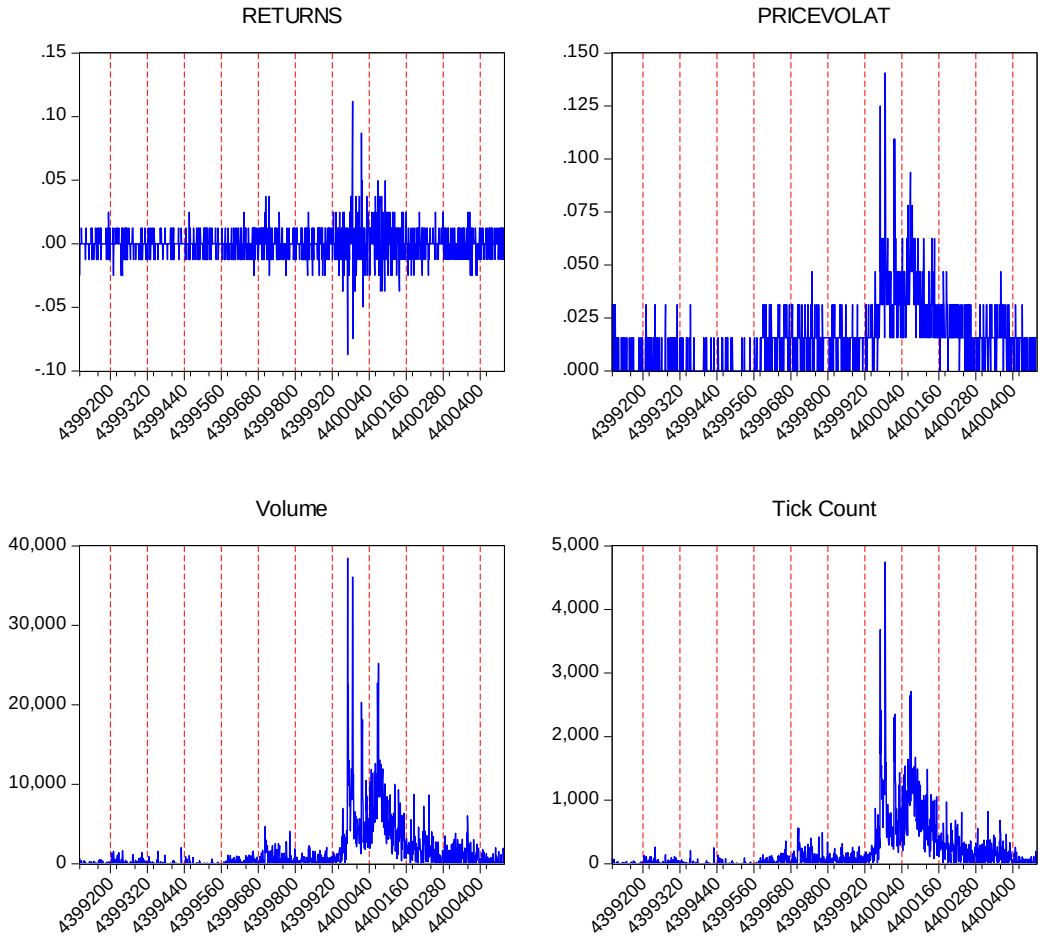
First announcement: 6:00 (3715211). Last announcement: 17:00 (3715871). 6 announcements

Figure 8:: July 19 2013, daily behavior of variables



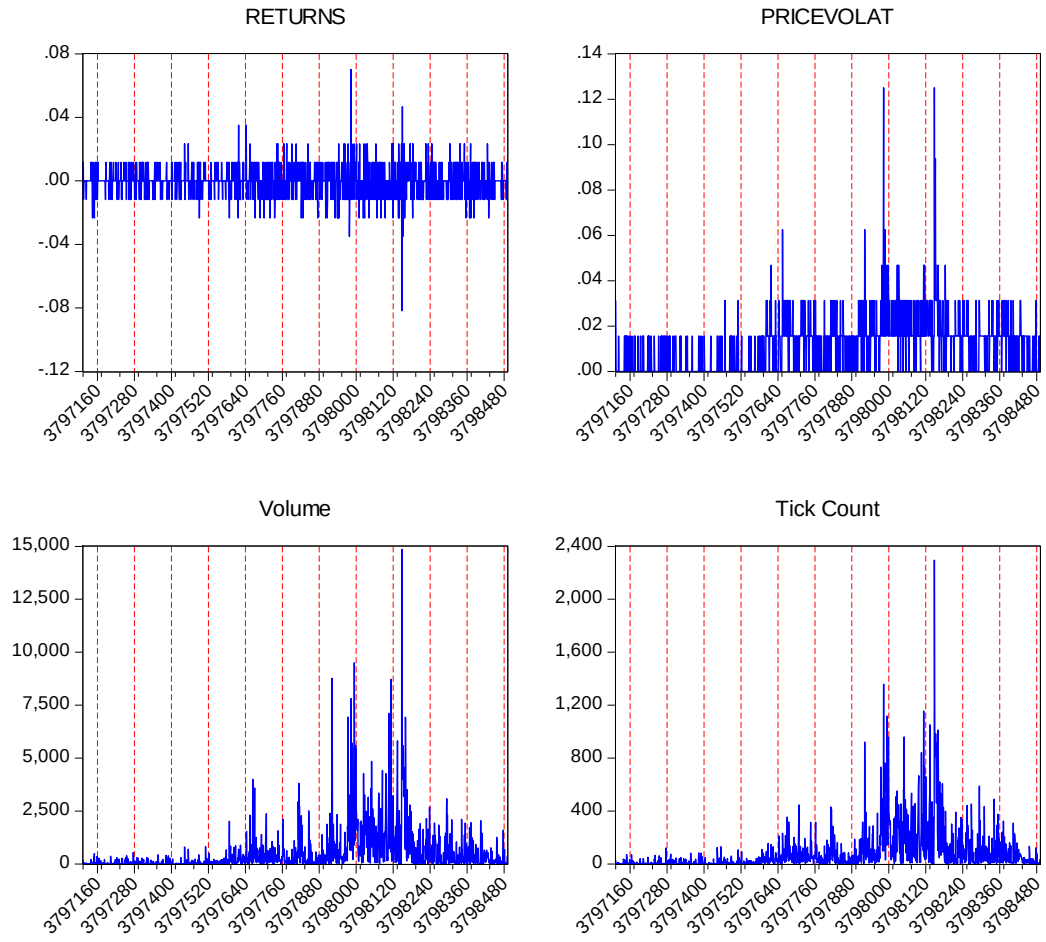
No announcements

Figure 9: May 15 2014, daily behavior of variables



First announcement: 8:30 (4399849). Last announcement: 10:30 (4399969). 9 announcements

Figure 10: August 24 2012, daily behavior of variables



One announcement: 8:30 (3797862)

The daily behavior of variables seems to follow some kind of pattern that can be described as follows:

1. A part of slow and low activity from the beginning of the trading day until 100-200min before the beginning of announcements.
2. A part of rising activity 100-200min before the beginning of announcements
3. A part of intense activity during the announcements.
4. A part of the most intense activity after the end of daily announcements.
5. And finally a part of return to low activity.

This is a rough segmentation of the daily behavior of variables while time intervals of this rough segmentation depend on the number of announcements, on the type of announcements and on the time of start-end of announcements and possibly other factors.

We will now present the analysis of our variables. We examine announcements in regard to shocks, maximums and extreme values of returns, volume, tick count and price volatility. For every variable a list of significant announcements is presented.

3.2.1 Returns

In this section we examine announcements in regard to shocks in returns. Particularly, we use the shocks in returns in order to trace the most significant announcements for price returns. The hypothesis is that significant announcement should be linked with large price fluctuations. We define shocks in prices as:

$$returns > 0.2\% \; and \; returns < -0.2\%,$$

a criterion found in (Fleming & Remolona, 1997). Our sample contains 73 price shocks (Table 3).

Table 3: Negative and positive price shocks represented by the percent of returns per minute

Date	Time	Negative Returns (%)	Last Ann/ment	Date	Time	Positive Returns (%)	Last Ann/ment
2/3/2012	10:31	-0.519726	10:00	4/6/2012	10:31	0.746269	15:00
2/28/2012	20:01	-0.213751	10:00	6/1/2012	10:31	0.325581	17:00
4/3/2012	16:00	-0.276742	10:00	9/7/2012	10:31	0.330539	8:30
5/30/2012	20:01	-0.719341	10:00	3/19/2012	21:01	0.417711	10:00
6/10/2012	20:01	-0.643953	10:00	4/5/2013	10:31	0.305810	15:00
6/17/2012	20:01	-0.373657	10:00	5/16/2013	10:31	0.213472	10:00
8/30/2012	20:01	-0.768872	14:00	6/3/2013	12:01	0.302517	17:00
9/13/2012	14:33	-0.282287	14:00	6/7/2013	10:31	0.314541	15:00
11/2/2012	10:31	-0.270684	10:00	6/7/2013	10:34	0.204795	15:00
11/29/2012	20:01	-0.373047	14:00	7/10/2013	20:01	0.273632	10:30
1/2/2013	9:01	-0.330306	10:00	7/15/2013	10:31	0.223491	10:00
2/28/2013	20:01	-0.872025	10:00	7/17/2013	10:31	0.259451	14:00
3/8/2013	10:31	-0.358766	10:00	8/2/2013	10:30	0.461289	10:00
5/3/2013	10:31	-0.327371	10:00	8/2/2013	10:31	0.260611	10:00
5/30/2013	20:01	-0.765917	13:00	8/26/2013	10:31	0.200175	8:30
6/7/2013	10:30	-0.433630	15:00	9/6/2013	10:31	0.778260	8:30
7/5/2013	10:31	-0.670225	8:30	9/15/2013	20:01	0.669784	10:00
8/29/2013	20:01	-0.872383	9:45	9/18/2013	16:01	0.743260	14:15
9/3/2013	12:01	-0.227416	10:00	9/18/2013	16:02	0.237589	14:15
11/8/2013	10:31	-1.029412	10:00	9/29/2013	20:01	0.247463	10:00
11/27/2013	20:01	-0.999013	10:30	10/22/2013	11:31	0.344785	10:00
12/6/2013	10:30	-0.238514	15:00	11/8/2013	10:30	0.418410	10:00
12/18/2013	16:01	-0.364184	14:15	1/10/2014	10:31	0.354655	10:00
1/28/2014	20:01	-0.212447	14:00	1/28/2014	10:31	0.225451	10:00
2/27/2014	20:01	-1.236858	10:30	2/7/2014	10:31	0.660848	15:00
3/7/2014	10:31	-0.516178	15:00	3/2/2014	20:01	0.388715	10:00
3/19/2014	16:01	-0.289417	14:00	4/4/2014	10:31	0.279756	8:30
5/2/2014	10:31	-0.501756	10:00	4/9/2014	16:01	0.202020	11:00
5/29/2014	20:01	-0.606436	11:00	6/18/2014	16:01	0.213944	14:00
7/3/2014	10:31	-0.339367	10:30	8/1/2014	10:31	0.426868	17:00
7/30/2014	10:31	-0.311876	14:00	9/5/2014	10:31	0.563063	8:30
8/28/2014	20:01	-0.445049	10:30	10/15/2014	10:31	0.244439	14:00
9/17/2014	16:01	-0.226102	14:00	10/15/2014	11:39	0.204548	14:00
10/3/2014	10:31	-0.249439	10:00	10/16/2014	3:29	0.377772	11:00
10/15/2014	11:42	-0.323625	14:00	11/7/2014	10:31	0.273088	15:00
10/29/2014	14:01	-0.222030	14:00				
11/26/2014	20:01	-0.466544	10:30				
12/5/2014	10:31	-0.494254	15:00				

Significant economic announcements for a certain asset are recognized as factors, among other information flows, that determine an asset's price. Therefore, in some cases an announcement can become *a point of dispute*, a point of great divergence between the ways in which market agents process released information. This divergence is reflected to large fluctuations of prices. Using Table 3 we have traced the announcements that have been released during days of large price fluctuations. Table 4 shows our results.

The mean frequencies of occurrence in days of shocks are:

- Weekly announcements: 16.7%
- Monthly announcements: 6.8%
- Quarterly announcements: 2.7%
- 8 times per year announcements: 8.2%

Table 4: Announcements in regard to shocks in returns

		Max returns	*Min returns*		
	Announcement	**Occurrence of announcement**	**Occurrence of announcement**	**Total occurrences**	**Frequency**
Weekly	UI claims	2	9	11	0.151
	Consumer Comfort index	2	10	12	0.164
	Oil inventories	6	7	13	0.178
	Mortgage Applications	9	9	18	0.247
	Weekly chain sales	1	6	7	0.096
Monthly	CPI	2	1	3	0.041
	Housing Starts	4	1	5	0.068
	Philadelphia Fed's Survey	2		2	0.027
	NAR Pending Home Sales Index	1	6	7	0.096
	Advance Durable Orders	1	4	5	0.068
	Leading Indicators	0	0	0	0.000
	New home sales	0	1	1	0.014
	KC Fed Mfg Survey	0	3	3	0.041
	Monster employment index	8	4	12	0.164
	Employment Situation	17	8	25	0.342
	Factory orders	4	3	7	0.096
	ISM Non-Mfg	1	4	5	0.068
	JOLTS	0	0	0	0.000
	Consumer Credit	6	2	8	0.110
	Wholesale trade	3	2	5	0.068
	ISM-Chicago index	2	1	3	0.041
	Import prices	0		0	0.000
	NY Fed Mfg survey	4	2	6	0.082
	PPI	3	2	5	0.068
	International Capital Flows	2	1	3	0.041
	Industrial production	2	1	3	0.041
	NAHB Housing index	1	1	2	0.027
	Existing home sales			0	0.000
	Auto sales	3	2	5	0.068
	ADP Employment Index	1	1	2	0.027
	Challenger Layoffs	0	0	0	0.000
	Monthly chain sales	0	2	2	0.027
	Small Business Confidence	0	0	0	0.000
	Personal income	5	3	8	0.110
	Construction	4	2	6	0.082
	ISM Mfg	3	2	5	0.068
	Retail sales	4	1	5	0.068
	Business Inventories	4	1	5	0.068
	HelpWant online	0	3	3	0.041
	CS House Prices	0	3	3	0.041
	Consumer confidence	0	4	4	0.055
	Treasury statement	0	1	1	0.014
	Blue chip forecast	2	0	2	0.027
	International Trade	2	4	6	0.082
	ConfBrd ETI: (2013-2014)	0	0	0	0.000
	NFIB SmlBusConf: (2013-2014)	0	0	0	0.000
	GDP (est)	1	7	8	0.110
	Productivity	0	0	0	0.000
	Corporate Profits	0	5	5	0.068
Quarterly	Current account	1	2	3	0.041
	ECI	0	0	0	0.000
	Fed FoF	0	0	0	0.000
	Business Employment Dynamics	0	1	1	0.014
	FED SLOOS	0	0	0	0.000
	Fed Fin. Accounts:(only in 2014)	0	0	0	0.000

	Manpower Outlook	0	0	0	0.000
8 times/year	FOMC meeting	3	5	8	0.110
	Beige Book	3	1	4	0.055
Twice/month	Consumers Sentiment	8	3	11	0.151
Monthly & Quarterly	FHFA HPI	0	0	0	0.000

Table 4 (continuation). Announcements in regard to shocks in returns

If we use this average as a criterion of significance then, significant announcements in regard to shocks in prices are presented in table 5 (we have rejected announcements that have a frequency equal to average):

Table 5: Significant announcements for price shocks

Periodicity	Announcement
Weekly	Oil inventories
	Mortgage Applications
Monthly	NAR PH Sales Index
	Monster employment index
	Employment Situation
	Factory orders
	Consumer Credit
	NY Fed Mfg survey
	Personal income
	Construction
	International Trade
	GDP (estimation)
Quarterly	Current account
8 times/year	FOMC meeting
Twice/month	Consumers Sentiment

Some primary comments should be made at this point. It is very interesting that in 53 out of 73 cases, shocks take place after the release of the last announcement. Furthermore, in the rest 20 cases, 11 shocks occur after the Employment Situation announcement. In addition, we can clearly spot time regularities. In most cases, shocks occur immediately after the last announcement release (10:31) or late in the evening (20:01).

3.2.2 Volume and Tick Count

The daily mean value of the volume of trade is calculated in order to find the top five maximums per month. For 180 maximums of trading activity we find that in 97 cases the maximums cluster, meaning that one maximum is paired at least with another maximum of the top five per month (53.8%)

The same phenomenon is found in the daily mean value of tick count. 112 out of 180 or 62.2% of maximum tick count daily mean values are clustered in at least two sequential days.

Another interesting feature of clustering is that there are days with maximum trading activity and maximum price changes but with no releases. These days are always preceding or following days with maximum activity that include announcements. So

clustering of volume and tick count may imply some kind of memory during the trading days.

The trading days of a month vary from 20 to 23. Another clustering feature appears while at least 3 maximums per month of daily mean volume and daily mean tick count occur during an interval of 5 to 6 days, in 32 out of 36 cases (88.8%).

Using the maximum daily mean value per month for both variables we get the following results (Table 6).

Table 6: Announcements' frequency in regard to monthly maximums of volume and tick count

		Volume		Tick Count	
	Announcement	occurrence in monthly maximums	frequency	occurrence in monthly maximums	frequency
Weekly	UI claims	10	0.278	11	0.306
	Consumer Comfort index	10	0.278	10	0.278
	Oil inventories	12	0.333	9	0.250
	Mortgage Applications	12	0.333	12	0.333
	Weekly chain sales	1	0.028	1	0.028
Monthly	CPI:	2	0.056	2	0.056
	Housing Starts	1	0.028	2	0.056
	Phil. Fed. Survey	2	0.056	2	0.056
	NAR PHSales Index	1	0.028	1	0.028
	Advance Durable Orders	1	0.028	1	0.028
	Leading Indicators	1	0.028	1	0.028
	New home sales	0	0.000	0	0.000
	KC Fed Mfg Survey	1	0.028	1	0.028
	Monster employment index	3	0.083	4	0.111
	Employment Situation	12	0.333	12	0.333
	Factory orders	4	0.111	4	0.111
	ISM Non-Mfg	1	0.028	1	0.028
	JOLTS	1	0.028	1	0.028
	Consumer Credit	6	0.167	5	0.139
	Wholesale trade	2	0.056	2	0.056
	ISM-Chicago index	3	0.083	2	0.056
	Import prices	2	0.056	2	0.056
	NY Fed Mfg survey	3	0.083	3	0.083
	PPI	3	0.083	2	0.056
	International Capital Flows	2	0.056	2	0.056
	Industrial production	2	0.056	2	0.056
	NAHB Housing index	3	0.083	3	0.083
	Existing home sales	2	0.056	2	0.056
	Auto sales	2	0.056	2	0.056
	ADP Employment Index	4	0.111	3	0.083
	Challenger Layoffs	3	0.083	4	0.111
	Monthly chain sales	2	0.056	3	0.083
	Small Business Confidence	1	0.028	1	0.028

	Personal income	2	0.056	2	0.056
	Construction	2	0.056	2	0.056
	ISM Mfg	2	0.056	2	0.056
	Retail sales	3	0.083	2	0.056
	Business Inventories	3	0.083	2	0.056
	HelpWant online	3	0.083	2	0.056
	CS House Prices	0	0.000	0	0.000
	Consumer confidence	0	0.000	0	0.000
	Treasury statement	1	0.028	1	0.028
	Blue chip forecast	1	0.028	1	0.028
	International Trade	1	0.028	0	0.000
	ConfBrd ETI: (2013-2014)	0	0.000	0	0.000
	NFIB SmlBusConf: (2013-2014)	0	0.000	0	0.000
	GDP (est)	7	0.194	5	0.139
	Productivity	1	0.028	1	0.028
	Corporate Profits	3	0.083	3	0.083
Quarterly	Current account	1	0.028	2	0.056
	ECI	1	0.028	0	0.000
	Fed FoF	1	0.028	0	0.000
	Business Employment Dynamics	2	0.056	3	0.083
	FED SLOOS	0	0.000	0	0.000
	Fed Financial Accounts: (only in 2014)	0	0.000	0	0.000
	Manpower Outlook	0	0.000	0	0.000
			0.000		
8 times/year	FOMC meeting	6	0.167	6	0.167
	Beige Bk	2	0.056	2	0.056
Twice/month	Consumers Sentiment	6	0.167	5	0.139
Monthly & Ouarterly	FHFA HPI	1	0.028	1	0.028

Table 6 (continuation). Announcements' frequency in regard to monthly maximums of volume and tick count

The average frequencies of occurrence in volume monthly maximums are:

- Weekly announcements: 25%
- Monthly announcements: 7.1%
- Quarterly announcements: 3.5%
- 8 times per year announcements: 11.1%

The average frequencies of occurrence in tick count monthly maximums are:

- Weekly announcements: 23.9%
- Monthly announcements: 6.8%
- Quarterly announcements: 6.9%
- 8 times per year announcements: 11.1%

If we use these averages as a criterion of significance then, significant announcements in regard to volume and tick count are presented in tables 7 and 8 (we have rejected announcements that have a frequency equal to average):

Table 7: Significant announcements for volume of trade (monthly)

	Announcement
Weekly	UI claims
	Consumer Comfort index
	Oil inventories
	Mortgage Applications
Monthly	Monster employment index
	Employment Situation
	Factory orders
	Consumer Credit
	ISM-Chicago index
	NY Fed Mfg survey
	PPI
	NAHB Housing index
	ADP Employment Index
	Challenger Layoffs
	Retail sales
	Business Inventories
	HelpWant online
	GDP (est)
	Corporate Profits
Quarterly	Business Employment Dynamics
8 times/year	FOMC meeting
Twice/month	Consumers Sentiment

Table 8: Significant announcements for tick count (monthly)

	Announcement
Weekly	UI claims
	Consumer Comfort index
	Oil inventories
	Mortgage Applications
Monthly	Monster employment index
	Employment Situation
	Factory orders
	Consumer Credit
	NY Fed Mfg survey
	NAHB Housing index
	ADP Employment Index
	Challenger Layoffs

	Monthly chain sales
	GDP (est)
	Corporate Profits
Quarterly	Business Employment Dynamics
8 times/year	FOMC meeting
Twice/month	Consumers Sentiment

Now, we will proceed to the same analysis by using the maximum daily mean volume and maximum daily mean tick count of every trading week (157 maximums for each variable). Table 9 shows our results:

Table 9: Announcements' frequency in regard to weekly maximums of volume and tick count

		Volume		**Tick Count**	
	Announcement	occurrence in weekly maximum	frequency	occurrence in weekly maximum	frequency
Weekly	UI claims	42	0.268	50	0.318
	Consumer Comfort index	42	0.268	50	0.318
	Oil inventories	45	0.287	56	0.357
	Mortgage Applications	37	0.236	40	0.255
	Weekly chain sales	9	0.057	9	0.057
Monthly	CPI	10	0.064	12	0.076
	Housing Starts	13	0.083	17	0.108
	Phil. Fed. Survey	13	0.083	16	0.102
	NAR PHSales Index	4	0.025	6	0.038
	Advance Durable Orders	8	0.051	7	0.045
	Leading Indicators	5	0.032	7	0.045
	New home sales	7	0.045	10	0.064
	KC Fed Mfg Survey	4	0.025	6	0.038
	Monster employment index	14	0.089	16	0.102
	Employment Situation	29	0.185	31	0.197
	Factory orders	9	0.057	11	0.070
	ISM Non-Mfg	6	0.038	8	0.051
	JOLTS	2	0.013	3	0.019
	Consumer Credit	11	0.070	12	0.076
	Wholesale trade	11	0.070	12	0.076
	ISM-Chicago index	10	0.064	5	0.032
	Import prices	11	0.070	11	0.070
	NY Fed Mfg survey	9	0.057	10	0.064
	PPI	10	0.064	9	0.057
	International Capital Flows	7	0.045	8	0.051
	Industrial production	4	0.025	6	0.038
	NAHB Housing index	9	0.057	6	0.038

	Existing home sales	7	0.045	9	0.057
	Auto sales	5	0.032	7	0.045
	ADP Employment Index	3	0.019	3	0.019
	Challenger Layoffs	3	0.019	4	0.025
	Monthly chain sales	7	0.045	10	0.064
	Small Business Confidence	1	0.006	1	0.006
	Personal income	11	0.070	10	0.064
	Construction	6	0.038	8	0.051
	ISM Mfg	5	0.032	7	0.045
	Retail sales	11	0.070	10	0.064
	Business Inventories	11	0.070	10	0.064
	HelpWant online	3	0.019	2	0.013
	CS House Prices	3	0.019	6	0.038
	Consumer confidence	3	0.019	7	0.045
	Treasury statement	7	0.045	8	0.051
	Blue chip forecast	7	0.045	8	0.051
	International Trade	11	0.070	11	0.070
	ConfBrd ETI: (2013-2014)	1	0.006	1	0.006
	NFIB SmlBusConf: (2013-2014)	1	0.006	1	0.006
	GDP (est)	9	0.057	9	0.057
	Productivity	4	0.025	5	0.032
	Corporate Profits	5	0.032	6	0.038
Quarterly	Current account	6	0.038	5	0.032
	ECI	2	0.013	0	0.000
	Fed FoF	2	0.013	1	0.006
	Business Employment Dynamics	1	0.006	2	0.013
	FED SLOOS	0	0.000	1	0.006
	Fed Financial Accounts: (only in 2014)	0	0.000	0	0.000
	Manpower Outlook	1	0.006	1	0.006
8 times/year	FOMC meeting	9	0.057	9	0.057
	Beige Book	5	0.032	6	0.038
Twice/month	Consumers Sentiment	22	0.140	18	0.115
Monthly & Ouarterly	FHFA HPI	6	0.038	9	0.057

Table 9 (continuation). Announcements' frequency in regard to weekly maximums of volume and tick count.

The mean frequencies of occurrence in volume weekly maximums are:

- Weekly announcements: 22.3%
- Monthly announcements: 4.8%
- Quarterly announcements: 1.1%
- 8 times per year announcements: 4.5%

The average frequencies of occurrence in tick count weekly maximums are:

- Weekly announcements: 26.1%
- Monthly announcements: 5.4%
- Quarterly announcements: 1.3%
- 8 times per year announcements: 4.8%

Tables 10 and 11 present significant announcements for volume and tick count in regard to weekly maximums.

Table 10: Significant announcements for volume (weekly)

	Announcement
Weekly	UI claims
	Consumer Comfort index
	Oil inventories
	Mortgage Applications
Monthly	CPI
	Housing Starts
	Phil. Fed. Survey
	Advance Durable Orders
	Monster employment index
	Employment Situation
	Factory orders
	Consumer Credit
	Wholesale trade
	ISM-Chicago index
	Import prices
	NY Fed Mfg survey
	PPI
	NAHB Housing index
	Personal income
	Retail sales
	Business Inventories
	International Trade
	GDP (est)
Quarterly	Current account
	ECI
	Fed FoF
8 times/year	FOMC meeting
Twice/month	Consumers Sentiment

Table 11: Significant announcements for tick count (weekly)

	Announcement
Weekly	UI claims
	Consumer Comfort index
	Oil inventories
Monthly	CPI
	Housing Starts
	Phil. Fed. Survey
	New home sales
	Monster employment index
	Employment Situation
	Factory orders
	Consumer Credit
	Wholesale trade
	Import prices
	NY Fed Mfg survey
	PPI
	Existing home sales
	Monthly chain sales
	Personal income
	Retail sales
	Business Inventories
	International Trade
	GDP (est)
Quarterly	Current account
8 times/year	FOMC meeting
Twice/month	Consumers Sentiment

3.2.3 Price volatility

We use a range based measure of price volatility named *pricevolat*: high-low per minute ($/min). As a criterion for tracing the most significance announcements in regard to volatility of price, we use only the extreme values of the variable pricevolat i.e. 10 times the mean value. We find 397 values that satisfy our criterion: pricevolat≥0.15625 ($/min). For reasons of space we present these results at Appendix C while in table 12, we present announcements in regard to volatility extremes. An immediate result that can be clearly seen is the clustering of volatility extremes showed in the minute-by-minute values during certain days.

Table 12: Announcements in regard to price volatility extremes

	Announcement	occurrence	frequency
Weekly	UI claims	79	0.1990
	Consumer Comfort index	84	0.2116
	Oil inventories	117	0.2947
	Mortgage Applications	159	0.4005
	Weekly chain sales	12	0.0302
Monthly	CPI	33	0.0831
	Housing Starts	29	0.0730
	Phil. Fed. Survey	23	0.0579
	NAR PHSales Index	10	0.0252
	Advance Durable Orders	8	0.0202
	Leading Indicators	9	0.0227
	New home sales	11	0.0277
	KC Fed Mfg Survey	6	0.0151
	Monster employment index	48	0.1209
	Employment Situation	78	0.1965
	Factory orders	27	0.0680
	ISM Non-Mfg	20	0.0504
	JOLTS	3	0.0076
	Consumer Credit	33	0.0831
	Wholesale trade	7	0.0176
	ISM-Chicago index	12	0.0302
	Import prices	24	0.0605
	NY Fed Mfg survey	35	0.0882
	PPI	45	0.1134
	International Capital Flows	16	0.0403
	Industrial production	16	0.0403
	NAHB Housing index	18	0.0453
	Existing home sales	20	0.0504
	Auto sales	12	0.0302
	ADP Employment Index	31	0.0781
	Challenger Layoffs	13	0.0327
	Monthly chain sales	22	0.0554
	Small Business Confidence	2	0.0050
	Personal income	17	0.0428
	Construction	18	0.0453
	ISM Mfg	18	0.0453
	Retail sales	47	0.1184
	Business Inventories	47	0.1184
	HelpWant online	26	0.0655
	CS House Prices	4	0.0101
	Consumer confidence	4	0.0101

	Treasury statement	19	0.0479
	Blue chip forecast	12	0.0302
	International Trade	14	0.0353
	ConfBrd ETI: (2013-2014)	0	0.0000
	NFIB SmlBusConf: (2013-2014)	5	0.0126
	GDP (est)	32	0.0806
	Productivity	8	0.0202
	Corporate Profits	10	0.0252
Quarterly	Current account	26	0.0655
	E CI	7	0.0176
	Fed FoF	4	0.0101
	Business Employment Dynamics	8	0.0202
	FED SLOOS	3	0.0076
	Manpower Outlook	0	0.0000
			0.0000
8 times/year	FOMC meeting:	75	0.1889
	Beige Book	37	0.0932
			0.0000
Twice/month	Consumers Sentiment	28	0.0705
Monthly & Ouarterly	FHFA HPI	11	0.0277

Table 12 (continuation): Announcements in regard to price volatility extremes

The mean frequencies of occurrence in days of price volatility extremes are:

- Weekly announcements: 22.7%
- Monthly announcements: 5.23%
- Quarterly announcements: 2.42%
- 8 times per year announcements: 14.11%

Table 13 presents the announcements that pass the mean criterion. Cases which have a frequency equal to mean were rejected.

Table 13: Significant announcements in regard to price volatility extremes

	Announcement
Weekly	Oil inventories
	Mortgage Applications
Monthly	CPI
	Housing Starts
	Phil. Fed. Survey
	Monster employment index
	Employment Situation
	Factory orders

	Consumer Credit
	Import prices
	NY Fed Mfg survey
	PPI
	ADP Employment Index
	Monthly chain sales
	Retail sales
	Business Inventories
	HelpWant online
	GDP (est)
Quarterly	Current account
8 times/year	FOMC meeting:
Twice/month	Consumers Sentiment

3.2.4 Combining the tables of significant announcements

The following table (14) combines the results of all the previous cases. In table 14 column A uses the monthly maximums of volume and tick count while in column B we have used weekly maximums of the aforementioned variables. This table presents the most significant due to their occurrence in all the examined variables and as it can been seen they differ only in one case: the Mortgage Applications Announcement. We argue that this announcement is important for the market because we can spot cases of shocks and extremes where this announcement is the only daily release.

Table 14: Most significant announcements for the 10y U.S. Treasury

	Announcements	
	A	B
Weekly	Oil inventories	Oil inventories
		Mortgage Applications
Monthly	Monster employment index	Monster employment index
	Employment Situation	Employment Situation
	Factory orders	Factory orders
	Consumer Credit	Consumer Credit
	NY Fed Mfg survey	NY Fed Mfg survey
	GDP (estimation)	GDP (estimation)
8 times/year	FOMC meeting	FOMC meeting
Twice/month	Consumers Sentiment	Consumers Sentiment

3.2.5 Impact on returns by Employment and FOMC releases in different time-frames (fixed or random effects?)[6]

There is no study in the relevant literature that refutes the significance of two announcements for the U.S. Treasuries market: "Employment Situation" and FOMC meeting[7]. According to some authors these are the most important announcements for Treasuries while, Non-farm payrolls, one of the two major information releases in "Employment Situation" is called "The King"[8] of announcements for the U.S. Treasuries market (Andersen, Bollerslev, Diebold, & Vega, 2007).

The two announcements do not overlap with other releases during the time-window that we use. Employment is always released at 8:30 (EST) and FOMC at 14:15 (EST) in 2012-2013 and at 14:00 in 2014. However, Employment is simultaneously released with other announcements in 10 out of 36 occasions (5 with International Trade and 5 with Personal Income). Although International Trade and Personal Income appear in Table 5 of significant announcements for shocks in returns they do not appear in Table 14 where the announcements show significance for all the variables of trading dynamics. On the other hand, FOMC releases never coincide with any other announcement. Our sample contains 24 FOMC announcements.

As we have mentioned in the review of literature, coefficients of regressions estimated, usually indicate the average differences of a dependent variable (e.g price volatility of an asset), in announcement and non-announcement days. We estimate regression of returns and volume on their first order lag and a dummy variable which represents a release, i.e. an event without reference to its content. We explore the possible impact of announcement on the two variables for four different time intervals. We use a $[-30, +60]min$ time window where $t = 0$ is the moment of announcement. Then our dummy variable is:

1. $0 \ for -30 \leq \mathrm{t} \leq -1 \ and \ 1 \ for \ 0 \leq t \leq +60$
   (time window A)
2. $0 \ for -30 \leq \mathrm{t} \leq -1, \ 1 \ for \ 0 \leq t \leq +5 \ and \ 0 \ for \ +6 \leq t \leq +60$
   (time window B)
3. $0 \ for -30 \leq \mathrm{t} \leq -1, \ 1 \ for \ 0 \leq t \leq +10 \ and \ 0 \ for \ +11 \leq t \leq +60$
   (time window C)
4. $0 \ for -30 \leq \mathrm{t} \leq -1, \ 1 \ for \ 0 \leq t \leq +15 \ and \ 0 \ for \ +16 \leq t \leq +60$
   (time window D)

The above segmentation tries to capture the impact of announcement for 5,10,15 and 60 minutes immediately after the release.

Our samples consist of 91 observations for 36 Employment releases and for 24 FOMC meetings, 3276 and 2184 respectively. We estimate the following models for each announcement:

$$Y_{i,t} = \beta_0 + \beta_1 Y_{i,t-1} + \gamma D_{i,t} + \varepsilon_t \quad (4)$$
$$Y_{i,t} = \beta_0 + \beta_1 Y_{i,t-1} + \gamma Y_{i,t-1} D_{i,t} + \varepsilon_t \quad (5)$$

6 The full results of our tests and estimations for this section are given at APPENDIX E

7 For an analytical presentation of what these announcements contain see APPENDIX A.

8 The other major release is Civilian Unemployment Rate on a monthly basis.

where:

- $Y_{i,t}$ is $R_{i,t}$ returns at time t on day i or $V_{i,t}$ volume at time t on day i
- β_1 is the sensitivity of $R_{i,t}$or $V_{i,t}$on its lagged value in model 4
- $D_{i,t}$ is the dummy variable which controls the time window in which we explore the impact of announcement on the two variables.
- γ is the sensitivity of $R_{i,t}$ or $V_{i,t}$ on the announcement release in model 4 while $(\beta_1 + \gamma)$ is the sensitivity of $R_{i,t}$ or $V_{i,t}$ on the announcement release in model 5.
- $\varepsilon_{i,t} \sim N(0, \sigma_\varepsilon^2)$ is the error term.

Due to the panel nature of our sample we check for fixed or random effects. In case of fixed effects, the same announcement on each day is considered heterogeneous; there is an unobserved time invariant explanatory variable in the residuals: $\varepsilon_{i,t} = \mu_i + u_{i,t}$, where $u_{i,t} \sim N(0, \sigma_u^2)$. In the case of announcements this would mean that there is a response of prices to the announcement without regard to its informational content. While in random effects models the expected value of this time invariant is zero: there is no individual effect from the announcement as an event. The Hausman test is used for testing if fixed or random effects are appropriate for our models . The null hypothesis is that random effects are appropriate while the alternative is fixed effects are appropriate.

Hausman tests for both returns and volume models (4) and (5) rejects the null hypothesis. So the alternative is fixed effects. Furthermore we estimate models (4) and (5) under cross-section fixed effects. We also use White crosss-section for the residuals[9].

The results show the estimations that have significant coefficients for the Dummy variable summarized in Table 15.

Table 15: Results for significant estimations

Variable & Announcement	Model	Time window	Coefficient γ	P-value	R-squared
Returns-Employment	4	C: 10min	0.0007	0.0654	0.0681
Returns-FOMC	5	D: 15min	0.2189	0.0959	0.0437
Volume-Employment	4	A: 60min	143.6252	0.0000	0.1449
	4	D: 15min	-77.0006	0.0124	0.1386
	5	A: 60min	0.1633	0.0001	0.1434
	5	B: 5min	-0.1568	0.0021	0.1390
	5	C: 10min	-0.0867	0.0789	0.1381
	5	D: 15min	-0.0802	0.0894	0.1382
Volume-FOMC	4	A: 60min	284.0795	0.0568	0.3780
	4	B: 5min	-203.1676	0.0054	0.3750
	4	C: 10min	-288.6989	0.0005	0.3763
	4	D: 15min	-230.2980	0.0045	0.3702
	5	A: 60min	0.2802	0.0000	0.3908
	5	B: 5min	-0.1181	0.0638	0.3751
	5	C: 10min	-0.2605	0.0005	0.3789

9 The White cross-section method assumes that the errors are contemporaneously (cross-sectionally) correlated (period clustered). The method treats the pool regression as a multivariate regression (with an equation for each cross-section), and computes robust standard errors for the system of equations. (Eviews Help topics)

4. Discussion on findings

4.1 Patterns in trading dynamics

A first result of the study is a pattern observed in the daily trading activity which main characteristics are:

1. A slow activity from the begging of the trading day at 1:00EST.
2. A rising activity around and mainly after the begging of releases (most releases occur at 7:00-11:00EST)
3. The higher daily activity starts usually immediately after the end of releases.
4. The smoothing of this activity lasts until the late evening (20:00-21:00EST) while it turns back to low few hours before 23:59EST.

In consistency with other studies which have reported price adjustment processes (Bollerslev, Cai, & Song, 2000; Flemming & Remolona, 1999) and patterns of trading volume (Baltuzzi, Elton, & Green, 1996; Flemming M., 1997) we observe a daily pattern in the 10y U.S. treasury. Flemming (1997) argues that apart from the partial role of announements for a specific part of the trading activity (8:30-9:00EST), there are other reasons for jumps in volume and price volatility. Particularly, he provides some examlples explained by the opening of other markets (e.g. U.S. Treasury futures trading and Forex) or other informational flows.

On the other hand, the everyday pattern of trading activity is attributed to the opening, overlapping and closure of bond markets in New York, Tokyo and London. 94% of trading takes place at NYSE. Trading hours at NYSE are divided in three parts: Early trading (4:00-8:00), core trading (8:00-17:00) and late trading (17:00-20:00) (Flemming, 1997).

The pattern traced in our data is to a great extend consistent with the divisions of early, core and late trading of NYSE. However, the examination of shocks in returns shows that in most cases these extremes occur after the scheduled release of announcements in 53 out of 73 cases (72.6%). However, these extremes do not seem random while they occur in days when certain announcements are released. The same applies for extremes in price volatility. Moreover, maximums in volume of trade and tick count also occur in days of significant announcements.

A further investigation may differentiate between the single and the cumulative effect of announcements on shocks and surges. We have observed that days with more than 4 announcements in comparison to days with less than 4 announcements coincide with higher activity in the market, especially volume, tick count and price volatility. It must be noted that all our observations are without any reference to the content of announcements. It is interesting to be tested whether the number of informational flows by itself induces larger fluctuations of the market.

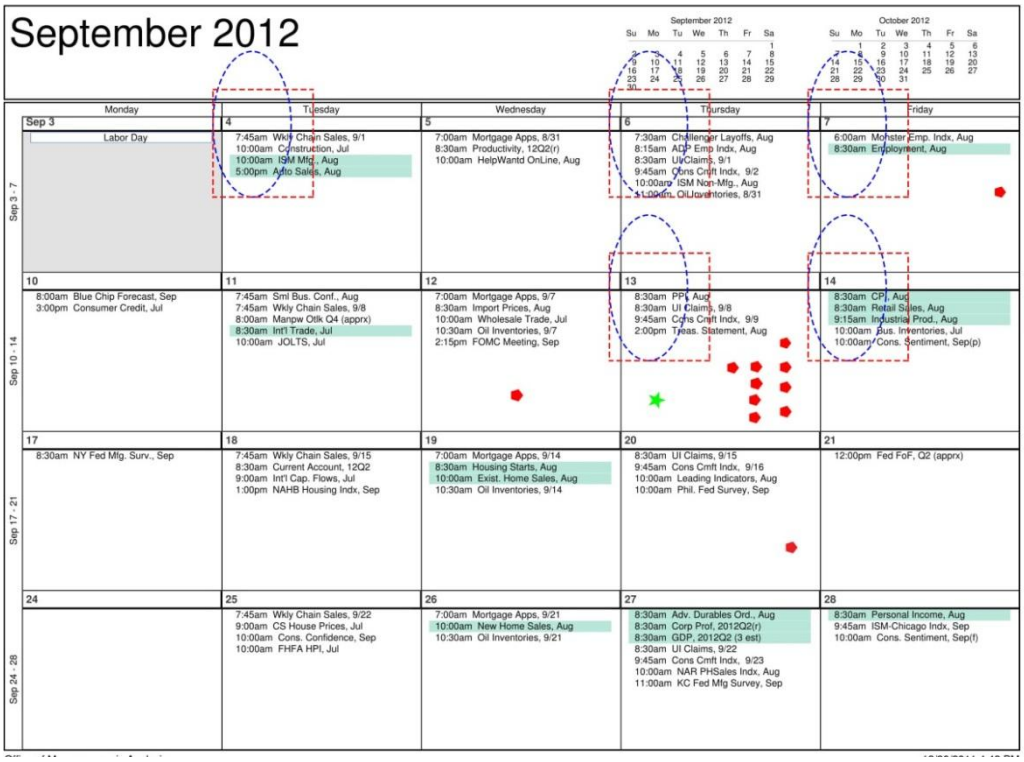
More precisely, we observe that 53.4% of shocks in returns occur within an hour after the last announcement (30-31minutes in most cases) or late in the afternoon (around 20:00EST). There is also evidence that in days of FOMC meetings (at 14:00 or 14:15EST) we find shocks in the next 30 minutes or two hours later (around 16:00EST).

4.2 Clustering effects

The second major finding of our analysis is that we clearly observe clustering effects in price volatility, in volume of trade and tick count. The following figures illustrate three

examples of clustering effects observed (fig.11-13. Notation: Rectangular: volume maximum, ellipse: tick count maximum, polygon: price volatility extreme, star: shock in returns).

Figure 11: Clustering effects, September 2012



Rectangular: volume maximum, ellipse: tick count maximum,
polygon: price volatility extreme, star: shock in returns.

Figure 12: Clustering effects, April 2013

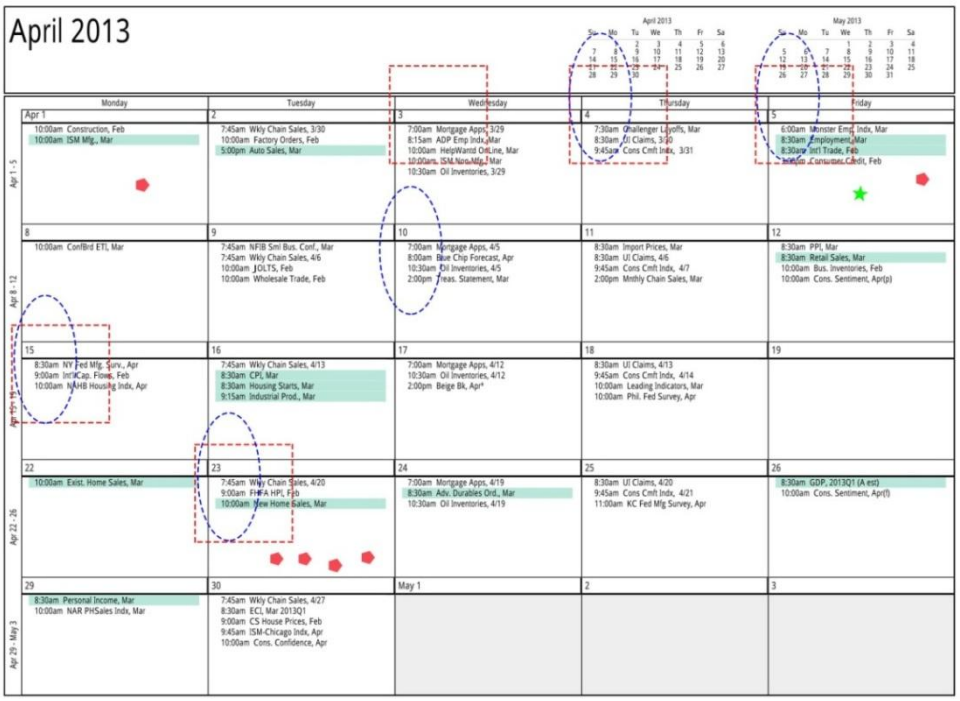
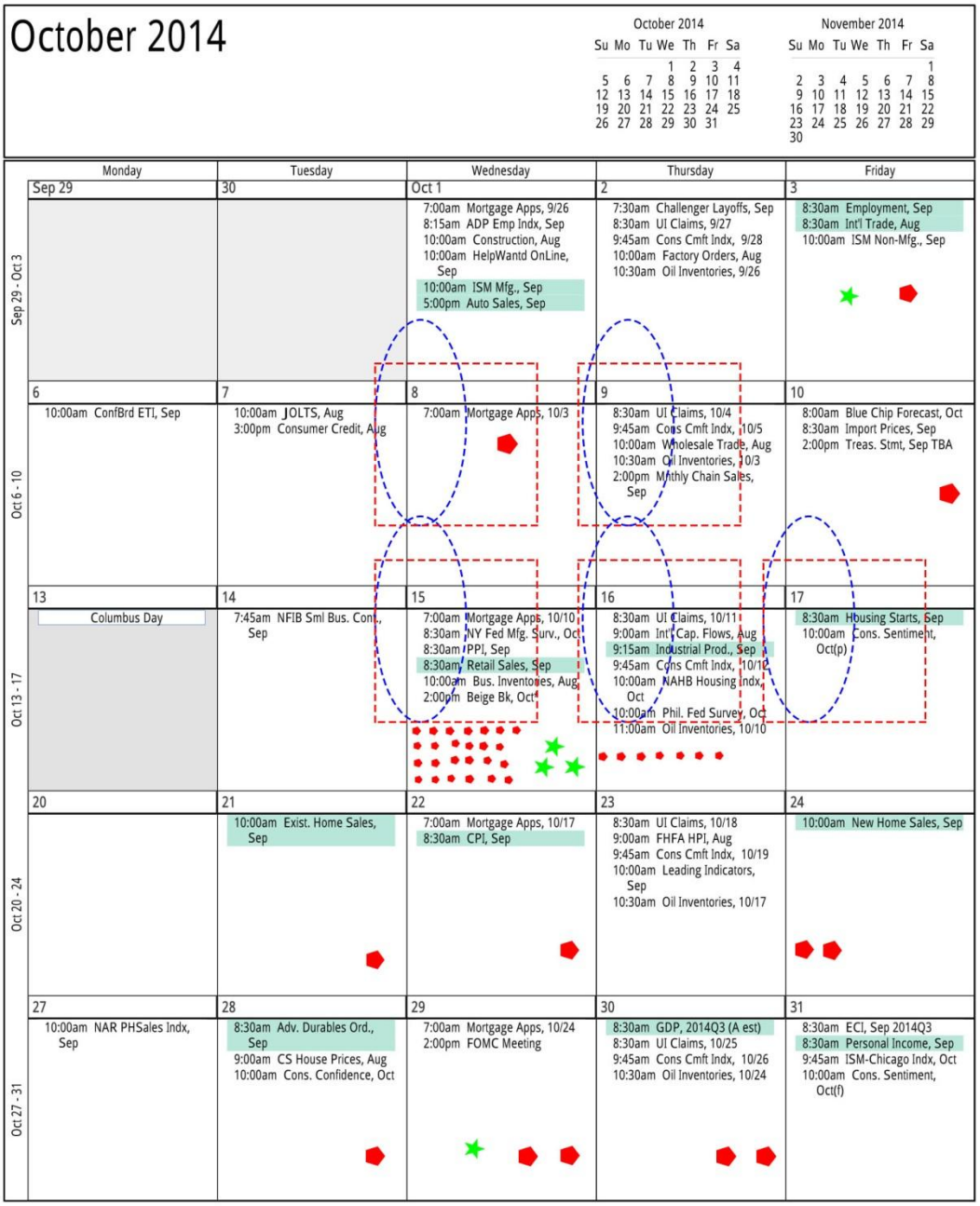


Figure 13: Clustering effects, October 2014



The clustering effects observed can lead us to a provisional conclusion which demands further investigation. We have spotted that in many cases *the extremes of trading dynamics variables cluster simultaneously*: highly volatile days are days with maximums in volume of trade and also shocks in returns which mean maximums in the value exchanged. From another point of view, maximum profits for some market agents and maximum loses for others. Moreover, maximums in tick count (changes in price per minute) present high disagreement among market agents. A major source of this disagreement is various informational flows and the ways in which market agents perceive these informational input. It will be interesting to examine whether tick count patterns precede, follow or accompany a sharp price fluctuation.

4.3 Significant announcements

Turning now our attention to the results in Table 14, where the most significant announcements for all the variables under examination are presented. We have ten announcements: 2 weekly, 6 monthly, 1 released 8 times per year and one released twice in a month. In regard to the content of information, our results can be divided in three categories as show in Table 16.

Table 16:Most significant announcements in regard to their content

Monetary-Financial	Production-Economic Activity	Expectations-Confidence
Oil inventories	Employment Situation	NY Fed Mfg survey
Mortgage Applications	Factory orders	Consumers Sentiment
Consumer Credit	GDP (estimation)	
FOMC	Monster employment index	

In regard to the source of information we can clearly spot the prevalence of public agencies in comparison to private agencies (Table 17).

Table 17: Most significant announcements in regard to their source

Public Agencies	Private Agencies
Oil inventories	Mortgage Applications
Employment Situation	Monster employment index
Factory orders	
Consumer Credit	
NY Fed Mfg survey	
GDP (estimation)	
FOMC	
Consumers Sentiment	

4.4 Responses of returns and volume of trade

The Hausman test shows that the regressions of returns and volume estimated for Employment and FOMC, points to fixed effects, i.e. the impact of these announcements on returns has a time-invariant characteristic; As shown in Table 15 the impact of both Employment and FOMC can be traced on returns and volume of trade for different time windows. The impact on returns is short-term (10-15min) while the impact on volume is traced in all time-windows (5-60min). Returns seem to adapt more rapidly to informational flows in comparison to volume of trade. Returns document a positive short-term impact in both cases. By examining the content of the 36 Employment Situation releases we find that Non-farm Payrolls are always positive while Civilian Unemployment rate is steadily falling.

An interesting finding is that volume of trade presents a negative response for the 5-15min windows and a positive response for the 60min window for both announcements. It could be investigated whether or not this is a possible response characteristic of volume of trade to announcements: a short-term negative response and a long-term positive response.

The behavior of volume of trade is better explained by the two models in comparison to returns. Moreover, the two models in the case of FOMC have higher explanatory power than in Employment situation. This could be interpreted as a difference in the informational value of the two announcements for volume of trade.

5. Conclusions and further research

This study aims to examine the trading dynamics of the 10y U.S. Treasury bond in regard to scheduled economic announcements concerning aspects of the U.S.A. economy. It is an event study while it investigates the possible correlation of announcements on shocks in returns, extremes in price volatility and maximus of volume of trade and tick count (around one million minute-by-minute observations from January 4 2012 to 31 December 2014). By examining the frequency and timing of coincidence of announcements with shocks and extremes in our variables, we infer the most significant announcements for every different variable and for the whole set of variables describing the trading dynamics of the asset. Our findings for the most significant announcements are to a great extent consistent with the literature implying that we can trace significant information flows without using expectational data, a result that can be further investigated.

In accordance with other studies, we find that only a small fraction (around 13%-15%) of the announcements examined have important impact on this market. Moreover, we point out a finding that, to our kwoledge, has not be highlighted before: mainly public agency announcements have a significant impact on this market.

Another development can be the division of announcements in positive and negative according to their content and then the comparison of results. This would be an investigation of the impact on returns or other vaiables due to the information content of announcements and also a search for assymentry of response in regard to “good” or “bad” news.

A better modeling method could be the break point estimation in fixed effects panel data. This technique is used in order to find the exact time-points where the dummy variable should be one or zero. This could provide a better picture for the impact and speed of announcements.

Another possible extension could be the exploration of the distributional properties of pre- and post-announcement behavior of the variables. This may be another way to trace the impact of information flows and its size on the asset. Pre- and post-announcement effects comparison may also be used for examining possible information leaks.

Moreover, the analysis conducted in this study can be extended by investigating the same issues during different macroeconomic conditions: growth, recession and crisis. The comparison of results should provide a useful view for the relation of announcements and trading dynamics in different macroeconomic conditions.

Furthermore, the development of a method for differentiating between simultaneous announcements, without the help of expectational data remains an open problem.

Our analysis may be extended and improved in order to produce more results on the issues concerning informational flows and their relation to asset markets.

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APPENDIX A: Economic Announcements[10]

1. **Consumer Price Index** (CPI): measures changes in the price level of a market basket of consumer goods and services purchased by households.

2. **Housing Starts**: Housing starts are the number of new residential construction projects that have begun during any particular month.

3**. Unemployment Insurance Claims** (UI Claims): A request made by an individual to the state government to receive temporary payments after having been laid off from a job. The United States Department of Labor keeps track of the number of weekly unemployment claims. It provides both seasonally adjusted and seasonally unadjusted claims numbers and also lists which states had an increase or decrease of 1,000 or more claims. These data are reported in the media as an indication of national and state economic health.

4. **Consumer Confidence Index**: is an indicator designed to measure consumer confidence, which is defined as the degree of optimism on the state of the economy that consumers are expressing through their activities of savings and spending.

5. **Oil Inventories**: The Energy Information Administration's (EIA) Crude Oil Inventories measures the weekly change in the number of barrels of commercial crude oil held by US firms. The level of inventories influences the price of petroleum products, which can have an impact on inflation.

6. **Philadelphia Federal Reserve Bank Survey** (Phil. Fed. Survey): A business outlook survey used to construct an index that tracks manufacturing conditions in the Philadelphia Federal Reserve district. The Philadelphia Fed survey is an indicator of trends in the manufacturing sector, and is correlated with the Institute for Supply Management (ISM) manufacturing index, as well as the industrial production index.

7. **Mortgage Applications** (Mortgage Apps): A document submitted by one or more individuals applying to borrow money to purchase a real estate property. The mortgage application contains information about the property the potential borrowers want to purchase, such as its address, year built and price, as well as financial and background information about the borrowers themselves. Lenders and underwriters use the information submitted on the mortgage application to determine whether money should be lent to the applicants and if so, how much, for how many years and at what interest rate. The data are provided by Mortgage Bankers Association.

8. **Federal Housing Finance Agency Housing Price Index** (FHFA HPI): The HPI is a broad measure of the movement of single-family house prices in the United States. The HPI is a weighted, repeat-sales index, meaning that it measures average price changes in repeat sales or refinancings on the same properties. This information is obtained by reviewing repeat mortgage transactions on single-family properties whose mortgages have been purchased or securitized by Fannie Mae or Freddie Mac since January 1975.

The HPI monthly indexes for census divisions and the United States were first published in March 2008 and they are updated monthly. A comprehensive HPI report is published every three months, approximately two months after the end of the previous quarter.

The HPI is revised each quarter. Historical estimates of the HPI revise for three primary reasons: 1) The HPI is based on repeat transactions. That is, the estimates of appreciation are

10 Sources: This appendix is an editing of original texts from Wikipedia, Investopedia, the US Bureau of Labor Statistics, the US Department of Treasury, the Board of Governors of Federal Reserve System and sites of agencies that provide certain surveys.

based on repeated valuations of the same property over time. Therefore, each time a property "repeats" in the form of a sale or refinance, average appreciation since the prior sale/refinance period is influenced. 2) Fannie Mae and Freddie Mac (GSEs) purchase seasoned loans, providing new information about prior quarters. 3) Due to a 30- to 45-day lag time from loan origination to GSE funding, FHFA receives data on new fundings for one additional month following the last month of the quarter. These fundings contain many loans originating in that most recent quarter, and especially the last month of the quarter. This will reduce with subsequent revisions, however data on loans purchased with a longer lag, including seasoned loans, will continue to generate revisions, especially for the most recent quarters.

9. **National Association of Realtors Pending Home sales Index** (NAR PHSales Indx): The Pending Home Sales Index (PHS), a leading indicator of housing activity, measures housing contract activity, and is based on signed real estate contracts for existing single-family homes, condos and co-ops. Because a home goes under contract a month or two before it is sold, the Pending Home Sales Index generally leads Existing Home Sales by a month or two.

10. **Federal Open Market Committee** (FOMC): A committee within the Federal Reserve System (the Fed), is charged under the United States law with overseeing the nation's open market operations (i.e., the Fed's buying and selling of United States Treasury securities). This Federal Reserve committee makes key decisions about interest rates and the growth of the United States money supply.

The FOMC is the principal organ of United States national monetary policy. The Committee sets monetary policy by specifying the short-term objective for the Fed's open market operations, which is usually a target level for the federal funds rate (the rate that commercial banks charge between themselves for overnight loans).

The FOMC also directs operations undertaken by the Federal Reserve System in foreign exchange markets although any intervention in foreign exchange markets is coordinated with the U.S. Treasury, which has responsibility for formulating U.S. policies regarding the exchange value of the dollar.

11**. Advance Report of Durable Goods Orders** (Adv. Durable Orders): An economic indicator released monthly by the Bureau of Census that reflects new orders placed with domestic manufacturers for delivery of factory hard goods (durable goods) in the near term or future. Durable goods orders come in two releases per month: the advance report on durable goods and the manufacturers' shipments, inventories and orders.

12. **Leading Indicators**: The Composite Index of Leading Indicators, otherwise known as the Leading Economic Index (LEI), is an index published monthly by the Conference Board used to predict the direction of global economic movements in the months to come. It is made up of 10 economic components, whose changes tend to precede changes in the overall economy. The Conference Board, founded in 1916, is an independent research association that provides its member organizations with economic and financial information.

13. **New Home Sales**: An economic indicator that measures sales of newly built homes. Released by the U.S. Department of Commerce's Census Bureau, it includes both quantity and price statistics. It is considered to be a lagging indicator of demand in the market and to affect mortgage rates.

14. **GDP (estimation**): is a monetary measure of the market value of all final goods and services produced in a period (quarterly or yearly). Nominal GDP estimates are commonly used to determine the economic performance of a whole country or region, and to make international comparisons. Nominal GDP per capita does not, however, reflect differences in the cost of living and the inflation rates of the countries; therefore using a GDP PPP per capita basis is arguably more useful when comparing differences in living standards between nations.

15. **Kansas City Federal Reserve Manufacturing Survey** (KC Fed. Mfg Survey): The Kansas City Fed's monthly Survey of Tenth District Manufacturers provides information on current manufacturing activity in the Tenth Federal Reserve District. The accumulated results help trace longer term trends. The survey monitors manufacturing plants selected according to geographic distribution, industry mix and size. Survey results reveal changes in several indicators of manufacturing activity, including production and shipments, and identify changes in prices of raw materials and finished products.

16. **Consumers Sentiment**: is a statistical measurement and economic indicator of the overall health of the economy as determined by consumer opinion. Consumer sentiment takes into account an individual's feelings toward his or her own current financial health, the health of the economy in the short term and the prospects for longer term economic growth. The survey is carried out by the University of Michigan.

17. **Monster Employment Index**: was a monthly analysis of online job demand conducted by Monster Worldwide, running from October 2003 through September 2013. Based on a monthly review of millions of opportunities culled from a large selection of corporate career sites and job boards, including itself, the Index presented a snapshot of employer online recruitment activity in the United States, Canada, and Europe.

Because recruitment typically precedes actual hiring by a month or two, the Monster Employment Index was considered a labor market leading indicator and a rough gauge of the overall economy.

The U.S. Monster Employment Index was released the two hours and a half before the Statistics Employment Situation in our sampe and only for the years 2012 and 2013.

18. **Employment**: is a monthly report generated and reported by the U.S. Bureau of Labor Statistics intended to represent the total number of paid U.S. workers of any business. Despite the name nonfarm payroll, the report excludes workers from general government jobs, private household jobs, employees of nonprofit organizations and farm employees.

The major statistic reported from the nonfarm payroll report is the number of additional jobs added from the previous month. The report also contains many valuable insights into the labor force that have a direct impact on the stock market, the value of the U.S. dollar and the price of gold. The nonfarm payroll report is a major tool used to determine the overall health of the economy. The total nonfarm payroll accounts for approximately 80% of the workers who produce the entire gross domestic product (GDP) of the United States.

The nonfarm payroll report shows statistics of unemployment for the U.S workforce. This is communicated through an overall unemployment rate, a long term unemployment rate and a youth unemployment rate. The labor force participation rate is also a key statistic used to determine the true unemployment rate of the country.

Statistics from the nonfarm payroll also show which sectors are generating the most employment additions. The report shows large gains and losses among the sectors. The list of sectors from the report include professional and business services, health care, financial activities, mining, construction, manufacturing, wholesale trade, retail trade, transportation and warehousing, information, and leisure and hospitality. This breakdown by sector is often used by stock analysts to predict which stocks and sectors have strong earnings reports.

The report also contains additional items such as the average work week and average hourly earnings. Wage growth is communicated with the report. Each month’s report may include revisions to previous reports.

19. **Factory Orders**: An economic indicator that reports the dollar level of new factory orders for both durable and non-durable goods. The factory orders report is released monthly by the Census Bureau of the U.S. Department of Commerce one or two weeks following the durable goods orders report. The factory orders report is split up into four sections: (a) New orders - indicating whether orders are growing or slowing, (b) unfilled orders - indicating a backlog in

production, (c) Shipments - indicating current sales (d) inventories - indicating strength of current and future production

20. **Institute of Supply Management Non-Manufacturing Index** (ISM Non-Mfg): is an index based on surveys of more than 400 non-manufacturing firms' purchasing and supply executives, within 60 sectors across the nation, by the Institute of ISM. The ISM Non-Manufacturing Index tracks economic data, like the ISM Non-Manufacturing Business Activity Index. A composite diffusion index is created based on the data from these surveys, that monitors economic conditions of the nation.

21. **Weekly Chain Sales**: An indicator that provides information on the weekly sales volumes from chain stores. It is considered as an indicator of trends in consumer spending and retail sales. Chain sales are reported as a percentage change from the previous week.

22. **Job Openings and Labor Turnover Survey** (JOLTS): A survey done by the United States Bureau of Labor Statistics to help measure job vacancies. It collects data from employers including retailers, manufacturers and different offices each month. Respondents to the survey answer quantitative and qualitative questions about their businesses' employment, job openings, recruitment, hires and separations. The JOLTS data is published monthly and by region and industry.

23. **Consumer Credit**: is a monthly release from the Federal Reserve Board that estimates changes in the dollar amounts of outstanding loans to individuals, funds which are mainly used to purchase consumer goods. Loans backed by real estate, such as home equity lines of credit (HELOCs), are not included in the survey. The two classes of credit covered are revolving and non-revolving credit; revolving credit can be increased by the consumer up to a limit without contacting the creditor (as in credit cards), while non-revolving terms are fixed at the time the loan (as with an auto loan).

Both classes are segmented into the categories below. The Consumer Credit Report shows the outstanding balances for each: Commercial banks, Finance companies, Credit unions, Federal government & Sallie Mae, Savings institutions, Non-financial businesses, Securitized asset pools.

Average interest rates are shown for many types of consumer debt, such as auto loans, credit cards and bank loans, collectively showing investors the overall "credit quality" of consumers and where the highest rates of growth are occurring.

Data is collected through surveys of banks, finance companies, retail sales outfits and credit unions, among others. Each release will show the three previous months' results, including any revisions to recent periods, if they have occurred.

24. **Wholesale trade**: is a report report is based on a monthly survey of about 4,500 wholesale merchants operating in the United States. The sample group is updated quarterly to reflect new businesses in the marketplace, and includes importers and exporters. While some wholesale companies do sell directly to end consumers (such as Costco), most companies surveyed here sell to retail businesses as their primary source of revenue.

The report presents three statistics to investors; monthly sales, monthly inventories and the inventory to sales ratio. The data is broken down into durables and non-durables, and from there about 8-10 industries within both. Coverage is nationwide

Data is released about six weeks after the end of the month and the report will show any revisions for the previous two reports as well. Percentage changes are shown from the prior month and year-over-year to smooth out volatility. Figures are based on current dollar values for products when estimating sales and inventory levels, which is a change from other indicators that may value product based on volume.

25. **Institute of Supply Management Chicago index (ISM-Chicago index)**: The ISM-Chicago Business Survey, a regional view of the national economy, is a time-tested, market-moving

report. The CHICAGO Report is available to subscribers 3 minutes before its release to the public 8:45 a.m. CT on the last working day each month. The Chicago Business Barometer, summarizing current business activity, also is known as Chicago Purchasing Manager Index or Chicago PMI. The Barometer is considered to be a leading indicator of the USA economy.

26. **Beige Book**: More formally called the Summary of Commentary on Current Economic Conditions is a report published by the United States Federal Reserve Board eight times a year. The report is published in advance of meetings of the Federal Open Market Committee. Each report is a gathering of "anecdotal information on current economic conditions" by each Federal Reserve Bank in its district from "Bank and Branch directors and interviews with key business contacts, economists, market experts, and others." The Beige Book began its ascent to its status as an economic indicator in 1985 when former Dow Jones reporter Paul Cox requested to see the report. The request was granted forcing competing journalists to demand access to it the following month

27. **Current Account**: is one of the two components of its balance of payments, the other being the capital account (sometimes called the financial account). The current account consists of the balance of trade, net primary income or factor income (earnings on foreign investments minus payments made to foreign investors) and net cash transfers, that have taken place over a given period of time. The current account balance is one of two major measures of a country's foreign trade (the other being the net capital outflow).

28. **Import Prices**: an index that monitors the prices of imports in the United States. The import prices index is created by compiling the prices of goods purchased in the U.S. but produced out of country.

29. **New York Federal Reserve Bank Manufacturing Survey** (NY Fed Mfg survey): An index based on the monthly survey of manufacturers in New York State. The index is based on survey responses to a questionnaire sent out on the first day of each month to an unchanged pool of about 200 top manufacturing executives, generally the president or CEO. The questionnaire seeks their opinion on the change in a number of business indicators from the previous month, and also the likely direction of these indicators six months into the future. Also known as the Empire State Manufacturing Index.

30. **Producers Price Index** (PPI): is a weighted index of prices measured at the wholesale, or producer level. A monthly release from the Bureau of Labor Statistics, the PPI shows trends within the wholesale markets, manufacturing industries and commodities markets. All of the physical goods-producing industries that make up the U.S. economy are included, but imports are not.

The PPI release has three headline index figures, one each for crude, intermediate and finished goods on the national level:

i. PPI Commodity Index (crude): This shows the average price change from the previous month for commodities such as energy, coal, crude oil and the steel scrap.
ii. PPI Stage of Processing (SOP) Index (intermediate): Goods here have been manufactured at some level but will be sold to further manufacturers to create the finished good. Some examples of SOP products are lumber, steel, cotton and diesel fuel.
iii. PPI Industry Index (finished): Final stage manufacturing, and the source of the core PPI.

The core PPI figure is the main attraction, which is the finished goods index minus the food and energy components, which are removed because of their volatility. The PPI percentage change from the prior period and annual projected rate will be the most printed figure of the release.

The PPI looks to capture only the prices that are being paid during the survey month itself. Many companies that do regular business with large customers have long-term contract rates, which may be known now but not paid until a future date. The PPI excludes future values or contract rates.

31. **International Capital Flows**: includes all net foreign acquisitions of long-term securities, short-term U.S. securities, and banking flows.

32. **Industrial production**: is an economic indicator that is released monthly by the Federal Reserve Board. The indicator measures the amount of output from the manufacturing, mining, electric and gas industries. The reference year for the index is 2002 and a level of 100.

33. **National Association of Home Builder Housing Index** (NAHB Housing index): is an index based on a monthly survey of NAHB members designed to take the pulse of the single-family housing market. The survey asks respondents to rate market conditions for the sale of new homes at the present time and in the next six months as well as the traffic of prospective buyers of new homes.

34. **Existing home sales**: An economic indicator of both the number and prices of existing single-family homes, condos and co-op sales over a one-month period. The existing home sales report is released monthly by the U.S. National Association of Realtors. It is a lagging indicator as it tends to react after a change in mortgage rates.

35. **Auto sales**: Total monthly vehicle sales in the United States.

36. **ADP Employment Index**: A report that measures levels of non-farm private employment. The ADP National Employment Report is based on payroll data from over half of ADP's U.S. business clients. The data represents about 24 million employees from all 19 of the major North American Industrial Classification (NAICS) private industrial sectors. The ADP Employer report is sponsored by ADP Employer Services and is maintained by Macroeconomic Advisers LLC., and is based on an analysis of over five years of data and a monthly review of payroll records.

37. **Challenger Layoffs**: A report, released monthly, that provides information on the number of announced corporate layoffs. The Challenger Layoffs Report is produced by Challenger, Grey & Christmas and tracks layoffs by industry and region. The report is an indicator used by investors to determine the strength of the labor market.

38. **Monthly Chain Sales**: An indicator that provides information on the monthly sales volumes from chain stores. Chain store sales, released on the first Thursday of the month, correspond to about 10% of retail sales, and are thought to be a good indicator of trends in consumer spending and retail sales. Chain store sales are reported as a percentage change from the same month one year earlier.

39. **Small Business Confidence** (Sml Bus. Conf.): is based on enterprises' assessment of production, orders and stocks, as well as its current position and expectations for the immediate future. Opinions compared to a “normal” state are collected and the difference between positive and negative answers provides a qualitative index on economic conditions.

40. **Corporate Profit** (Corp. Prof.): A corporate profit is a statistic reported quarterly by the Bureau of Economic Analysis that summarizes the net income of corporations in the National Income and Product Accounts (NIPA). Corporate profits is an economic indicator that calculates net income using several different measures:

- Profits From Current Production: Net income with inventory replacement and differences in income tax and income statement depreciation taken into consideration. Also known as operating or economic profits.
- Book Profits: Net income less inventory and depreciation adjustments.
- After-Tax Profits: Book profits after taxes are subtracted. After-tax profits are believed to be the most relevant number.

Because the BEA corporate profits number is derived from the NIPA (dependent on GDP/GNP growth), these profit numbers are often quite different from profit statements released by individual companies.

41. **Personal income**: Personal income refers to all of the income collectively received by all of the individuals or households in a country. Personal income includes compensation from a number of sources including salaries, wages and bonuses received from employment or self-employment; dividends and distributions received from investments; rental receipts from real estate investments and profit-sharing from businesses.

42. **Construction**: is a monthly report by the US Department of Housing and Urban Development and it includes building permits, housing starts and housing completions.

43. **ISM Manufacturing Index** (ISM Mfg): is an index based on surveys of more than 300 manufacturing firms by the Institute of Supply Management. The ISM Manufacturing Index monitors employment, production, inventories, new orders and supplier deliveries. A composite diffusion index monitors conditions in national manufacturing and is based on the data from these surveys.

44. **Productivity and Costs** (Productivity): is a report concerning nonfarm business sector labor productivity, unit labor costs in the nonfarm business sector, manufacturing sector labor productivity and unit labor costs in manufacturing sector. The report is released by the US Bureau of Labor Statistics.

45. **Retail sales**: This indicator tracks the dollar value of merchandise sold within the retail trade by taking a sampling of companies engaged in the business of selling end products to consumers. Both fixed point-of-sale businesses and non-store retailers (such as mail catalogs and vending machines) are used in the data sample. Companies of all sizes are used in the survey, from Wal-Mart to independent, small-town businesses.

The data released will cover the prior month's sales, making it a timely indicator of not only the performance of this important industry (consumer expenditures generally make up about two-thirds of total gross domestic product), but of price level activity as a whole. Retail Sales is considered a coincident indicator, in that activity reflects the current state of the economy. It is also considered a vital pre-inflationary indicator, which creates the biggest interest from Wall Street watchers and the Conference Review Board, which tracks data for the Federal Reserve Board's directors.

The release contains two components: a total sales figure (and related % change from the previous month), and one "ex-autos", as the large ticket price and historical seasonality of auto sales can throw off the total figure disproportionately.

46. **Business Inventories**: An economic figure that tracks the dollar amount of inventories held by retailers, wholesalers and manufacturers across the nation. Business inventories are essentially the amount of all products available to sell to other businesses and/or the end consumer. When tracked alongside a sales index, production activity in the near term can be predicted.

47. **Help Wanted online**: This data series provides timely monthly measures of labor demand (advertised vacancies) at the national, regional, state, and metropolitan area levels.

48. **Employment Cost Index** (ECI): A quarterly report from the U.S. Department of Labor that measures the growth of employee compensation (wages and benefits). The index is based on a survey of employer payrolls in the final month of each quarter. The ECI tracks movement in the cost of labor, including wages, fringe benefits and bonuses for employees at all levels of a company.

49. **Case-Shiller House Prices Index** (CS House Prices): The Standard & Poor's Case–Shiller Home Price Indices are repeat-sales house price indices for the US. There are multiple Case–Shiller home price indices: A national home price index, a 20-city composite index, a 10-city composite index, and twenty individual metro area indices. These indices are calculated and kept monthly by Standard & Poor's, with data points calculated for the time period of January 1987 through the present. The indices kept by Standard and Poor are normalized to have a value of 100 in January 2000.

50**. Consumer Comfort index**: An index by the Conference Board that measures how optimistic or pessimistic consumers are with respect to the economy in the near future. The idea behind the Consumer Confidence Index (CCI) is that if consumers are optimistic, they tend to purchase more goods and services. This increase in spending inevitably stimulates the whole economy.

51. **Treasury Statement**: The Monthly Treasury Statement summarizes the financial activities of the federal government and off-budget federal entities and conforms to the Budget of the U.S. Government. The MTS presents a summary of (a) Receipts and outlays, (b) Surplus or deficit and (c) Means of financing on a modified cash basis
The data in the MTS is provided by federal entities, disbursing officers, and Federal Reserve Banks.

52. **Federal Flow of Funds** (Fed. FoF): A set of accounts that is used to follow the flow of money within various sectors of an economy. Specifically, the account analyzes economic data on borrowing, lending and investment throughout sectors like households, businesses and farms.

53. **Blue Chip forecast**: Blue Chip Economic Indicators is a monthly survey and associated publication by the Blue Chip Publications division of Aspen Publishers collecting macroeconomic forecasts related to the economy of the United States. The survey polls America's top business economists, collecting their forecasts of US economic growth, inflation, interest rates, and a host of other critical indicators of future business activity.[1] It has a sister publication called Blue Chip Financial Forecasts, which surveys forecasts of the future direction and level of U.S. interest rates.

54**. Business Employment Dynamics**: is a set of statistics generated from the Quarterly Census of Employment and Wages program. These quarterly data series consist of gross job gains and gross job losses statistics from 1992 forward. These data help to provide a picture of the dynamic state of the labor market.

55**. International Trade**: reports the statistics for imports and exports in the US.

56. **Manpower Outlook Survey** (Mnpwr Outlk): measures hiring confidence among approximately 66000 employers in 42 countries and territories.

57. **Federal Reserve Bank Senior Loan Officer Opinion Survey on Bank Lending Practices** (Fed. SLOOS): Survey of up to eighty large domestic banks and twenty-four U.S. branches and agencies of foreign banks. The Federal Reserve generally conducts the survey quarterly, timing it so that results are available for the January/February, April/May, August, and October/November meetings of the Federal Open Market Committee. The Federal Reserve occasionally conducts one or two additional surveys during the year. Questions cover changes in the standards and terms of the banks' lending and the state of business and household demand for loans. The survey often includes questions on one or two other topics of current interest.

58. **Federal Reserve Bank Financial Accounts** (Fed. Fin'l Accts): These data are published quarterly about 10 weeks after the end of the quarter. They present the financial flows and levels for sectors in the U.S. economy as well as selected balance sheets, supplemental tables, and the

Integrated Macroeconomic Accounts. The Integrated Macroeconomic Accounts relate production, income, saving, and capital formation from the national income and product accounts to changes in net worth calculated from the financial accounts. These accounts are based on international guidelines and terminology as defined in the System of National Accounts.

59. **The Conference Board Employment Trends Index** (ConfBrd ETI): is an index that aggregates eight labor-market indicators, each of which has proven accurate in its own area. Aggregating individual indicators into a composite index filters out "noise" to show underlying trends more clearly. The eight labor-market indicators aggregated into the Employment Trends Index include:

- Percentage of Respondents Who Say They Find "Jobs Hard to Get" (The Conference Board ***Consumer Confidence Survey***®)
- Initial Claims for Unemployment Insurance (U.S. Department of Labor)
- Percentage of Firms With Positions Not Able to Fill Right Now (National Federation of Independent Business Research Foundation)
- Number of Employees Hired by the Temporary-Help Industry (U.S. Bureau of Labor Statistics)
- Ratio of Involuntarily Part-time to All Part-time Workers (BLS)
- Job Openings (BLS)
- Industrial Production (Federal Reserve Board)
- Real Manufacturing and Trade Sales (U.S. Bureau of Economic Analysis)

60. **National Federation of Independent Business Index of Small Business Confidence** (NFIB SmlBusCon): a survey based index that tracks the general state of the economy as it relates to businesses. It can include broad economy-wide conditions or specific economic conditions of a particular industry. It is one of the oldest and most widely respected economic research reports in the country. It is a survey asking small business owners a battery of questions related to their expectations for the future and their plans to hire, build inventory, borrow, and expand.

APPENDIX B: Calendars of economic announcements 2012-2014

January 2012

January 2012

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February 2012

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

	Monday	Tuesday	Wednesday	Thursday	Friday
Jan 2 - 6	**Jan 2** New Year's Day Observed	**3** 7:45am Wkly Chain Sales, 12/31 10:00am Construction, Nov 10:00am ISM Mfg., Dec	**4** 7:00am Mortgage Apps, 12/30 10:00am Factory Orders, Nov 10:00am HelpWantd OnLine, Dec 5:00pm Auto Sales, Dec	**5** 7:30am Challenger Layoffs, Dec 8:15am ADP Emp Indx, Dec 8:30am UI Claims, 12/31 9:45am Cons Cmft Indx, 1/1 10:00am ISM Non-Mfg., Dec 11:00am Oil Inventories, 12/30 2:00pm Mnthly Chain Sales, Dec	**6** 6:00am Monster Emp. Indx, Dec 8:30am Employment, Dec
Jan 9 - 13	**9** 3:00pm Consumer Credit, Nov	**10** 7:45am Sml Bus. Conf., Dec 7:45am Wkly Chain Sales, 1/7 8:00am Blue Chip Forecast, Jan 10:00am JOLTS, Nov 10:00am Wholesale Trade, Nov	**11** 7:00am Mortgage Apps, 1/6 10:30am Oil Inventories, 1/6 2:00pm Beige Bk, Jan	**12** 8:30am Retail Sales, Dec 8:30am UI Claims, 1/7 9:45am Cons Cmft Indx, 1/8 10:00am Bus. Inventories, Nov 2:00pm Treas. Statement, Dec	**13** 8:30am Import Prices, Dec 8:30am Int'l Trade, Nov 10:00am Cons. Sentiment, Jan(p)
Jan 16 - 20	**16** M. L. King, Jr. Day	**17** 7:45am Wkly Chain Sales, 1/14 8:30am NY Fed Mfg. Surv., Jan	**18** 7:00am Mortgage Apps, 1/13 8:30am PPI, Dec 9:00am Int'l Cap. Flows, Nov 9:15am Industrial Prod., Dec 1:00pm NAHB Housing Indx, Jan	**19** 8:30am CPI, Dec 8:30am Housing Starts, Dec 8:30am UI Claims, 1/14 9:45am Cons Cmft Indx, 1/15 10:00am Phil. Fed Survey, Jan 11:00am Oil Inventories, 1/13	**20** 10:00am Exist. Home Sales, Dec
Jan 23 - 27	**23**	**24** 7:45am Wkly Chain Sales, 1/21	**25** 7:00am Mortgage Apps, 1/20 10:00am FHFA HPI, Nov 10:00am NAR PHSales Indx, Dec 10:30am Oil Inventories, 1/20 2:15pm FOMC Meeting, Jan	**26** 8:30am Adv. Durables Ord., Dec 8:30am UI Claims, 1/21 9:45am Cons Cmft Indx, 1/22 10:00am Leading Indicators, Dec 10:00am New Home Sales, Dec 11:00am KC Fed Mfg Survey, Jan	**27** 8:30am GDP, 2011Q4 (A est) 10:00am Cons. Sentiment, Jan(f)
Jan 30 - Feb 3	**30** 8:30am Personal Income, Dec 2:00pm Fed SLOOS, Q1 (apprx)	**31** 7:45am Wkly Chain Sales, 1/28 8:30am ECI, Dec 11Q4 9:00am CS House Prices, Nov 9:45am ISM-Chicago Indx, Jan 10:00am Cons. Confidence, Jan	**Feb 1**	**2**	**3**

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February 2012

February 2012

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
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26	27	28	29			

March 2012

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

	Monday	Tuesday	Wednesday	Thursday	Friday
Jan 30 - Feb 3	**Jan 30**	**31**	**Feb 1** 7:00am Mortgage Apps, 1/27 8:15am ADP Emp Indx, Jan 10:00am Bus. Emp Dynam 11Q2 10:00am Construction, Dec 10:00am HelpWantd OnLine, Jan 10:00am ISM Mfg., Jan 10:30am Oil Inventories, 1/27 5:00pm Auto Sales, Jan	**2** 7:30am Challenger Layoffs, Jan 8:30am Productivity, 11Q4(p) 8:30am UI Claims, 1/28 9:45am Cons Cmft Indx, 1/29 2:00pm Mnthly Chain Sales, Jan	**3** 6:00am Monster Emp. Indx, Jan 8:30am Employment, Jan 10:00am Factory Orders, Dec 10:00am ISM Non-Mfg., Jan
Feb 6 - 10	**6** 7:45am Wkly Chain Sales, 2/4 10:00am JOLTS, Dec 3:00pm Consumer Credit, Dec	**7**	**8** 7:00am Mortgage Apps, 2/3 10:30am Oil Inventories, 2/3	**9** 8:30am UI Claims, 2/4 9:45am Cons Cmft Indx, 2/5 10:00am Wholesale Trade, Dec	**10** 8:00am Blue Chip Forecast, Feb 8:30am Int'l Trade, Dec 10:00am Cons. Sentiment, Feb(p) 2:00pm Treas. Statement, Jan
Feb 13 - 17	**13** 7:45am Sml Bus. Conf., Jan 7:45am Wkly Chain Sales, 2/11 8:30am Import Prices, Jan 8:30am Retail Sales, Jan 10:00am Bus. Inventories, Dec	**14**	**15** 7:00am Mortgage Apps, 2/10 8:30am NY Fed Mfg. Surv., Feb 9:00am Int'l Cap. Flows, Dec 9:15am Industrial Prod., Jan 10:30am Oil Inventories, 2/10 1:00pm NAHB Housing Indx, Feb	**16** 8:30am Housing Starts, Jan 8:30am PPI, Jan 8:30am UI Claims, 2/11 9:45am Cons Cmft Indx, 2/12 10:00am Phil. Fed Survey, Feb	**17** 8:30am CPI, Jan 10:00am Leading Indicators, Jan
Feb 20 - 24	**20** Presidents Day	**21** 7:45am Wkly Chain Sales, 2/18	**22** 7:00am Mortgage Apps, 2/17 10:00am Exist. Home Sales, Jan	**23** 8:30am UI Claims, 2/18 9:45am Cons Cmft Indx, 2/19 10:00am FHFA HPI, Dec & Q4 11:00am KC Fed Mfg Survey, Feb 11:00am Oil Inventories, 2/17	**24** 10:00am Cons. Sentiment, Feb(f) 10:00am New Home Sales, Jan
Feb 27 - Mar 2	**27** 10:00am NAR PHSales Indx, Jan	**28** 7:45am Wkly Chain Sales, 2/25 8:30am Adv. Durables Ord., Jan 9:00am CS House Prices, Dec 10:00am Cons. Confidence, Feb	**29** 7:00am Mortgage Apps, 2/24 8:30am GDP, 2011Q4 (2 est) 9:45am ISM-Chicago Indx, Feb 10:30am Oil Inventories, 2/24 2:00pm Beige Bk, Mar	**Mar 1**	**2**

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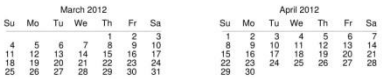
March 2012



	Monday	Tuesday	Wednesday	Thursday	Friday
Feb 27 - Mar 2	**Feb 27**	**28**	**29**	**Mar 1** 8:30am Personal Income, Jan 8:30am UI Claims, 2/25 9:45am Cons Cmft Indx, 2/26 10:00am Construction, Jan 10:00am ISM Mfg., Feb 2:00pm Mnthly Chain Sales, Feb 5:00pm Auto Sales, Feb	**2**
Mar 5 - 9	**5** 10:00am Factory Orders, Jan 10:00am HelpWantd OnLine, Feb 10:00am ISM Non-Mfg., Feb	**6** 7:45am Wkly Chain Sales, 3/3	**7** 7:00am Mortgage Apps, 3/2 8:15am ADP Emp Indx, Feb 8:30am Productivity, 11Q4(r) 10:30am Oil Inventories, 3/2 3:00pm Consumer Credit, Jan	**8** 7:30am Challenger Layoffs, Feb 8:30am UI Claims, 3/3 9:45am Cons Cmft Indx, 3/4 12:00pm Fed FoF, Q4 (apprx)	**9** 6:00am Monster Emp. Indx, Feb 8:30am Employment, Feb 8:30am Int'l Trade, Jan 10:00am Wholesale Trade, Jan
Mar 12 - 16	**12** 8:00am Blue Chip Forecast, Mar 2:00pm Treas. Statement, Feb	**13** 7:45am Sml Bus. Conf., Feb 7:45am Wkly Chain Sales, 3/10 8:00am Manpower Outlook, 12Q2 8:30am Retail Sales, Feb 10:00am Bus. Inventories, Jan 10:00am JOLTS, Jan 2:15pm FOMC Meeting, Mar	**14** 7:00am Mortgage Apps, 3/9 8:30am Current Account, 11Q4 8:30am Import Prices, Feb 10:30am Oil Inventories, 3/9	**15** 8:30am NY Fed Mfg. Surv., Mar 8:30am PPI, Feb 8:30am UI Claims, 3/10 9:00am Int'l Cap. Flows, Jan 9:45am Cons Cmft Indx, 3/11 10:00am Phil. Fed Survey, Mar	**16** 8:30am CPI, Feb 9:15am Industrial Prod., Feb 10:00am Cons. Sentiment, Mar(p)
Mar 19 - 23	**19** 1:00pm NAHB Housing Indx, Mar	**20** 7:45am Wkly Chain Sales, 3/17 8:30am Housing Starts, Feb	**21** 7:00am Mortgage Apps, 3/16 10:00am Exist. Home Sales, Feb 10:30am Oil Inventories, 3/16	**22** 8:30am UI Claims, 3/17 9:45am Cons Cmft Indx, 3/18 10:00am FHFA HPI, Jan 10:00am Leading Indicators, Feb	**23** 10:00am New Home Sales, Feb
Mar 26 - 30	**26** 10:00am NAR PHSales Indx, Feb	**27** 7:45am Wkly Chain Sales, 3/24 9:00am CS House Prices, Jan 10:00am Cons. Confidence, Mar	**28** 7:00am Mortgage Apps, 3/23 8:30am Adv. Durables Ord., Feb 10:30am Oil Inventories, 3/23	**29** 8:30am Corp Prof, 2011Q4(r) 8:30am GDP, 2011Q4 (3 est) 8:30am UI Claims, 3/24 9:45am Cons Cmft Indx, 3/25 11:00am KC Fed Mfg Survey, Mar	**30** 8:30am Personal Income, Feb 9:45am ISM-Chicago Indx, Mar 10:00am Cons. Sentiment, Mar(f)

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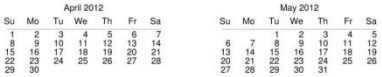
April 2012



	Monday	Tuesday	Wednesday	Thursday	Friday
Apr 2 - 6	**Apr 2** 10:00am Construction, Feb 10:00am HelpWantd OnLine, Mar 10:00am ISM Mfg., Mar	**3** 7:45am Wkly Chain Sales, 3/31 10:00am Factory Orders, Feb 5:00pm Auto Sales, Mar	**4** 7:00am Mortgage Apps, 3/30 8:15am ADP Emp Indx, Mar 10:00am ISM Non-Mfg., Mar 10:30am Oil Inventories, 3/30	**5** 7:30am Challenger Layoffs, Mar 8:30am UI Claims, 3/31 9:45am Cons Cmft Indx, 4/1 2:00pm Mnthly Chain Sales, Mar	**6** 6:00am Monster Emp. Indx, Mar 8:30am Employment, Mar 3:00pm Consumer Credit, Feb
Apr 9 - 13	**9**	**10** 7:45am Sml Bus. Conf., Mar 7:45am Wkly Chain Sales, 4/7 8:00am Blue Chip Forecast, Apr 10:00am JOLTS, Feb 10:00am Wholesale Trade, Feb	**11** 7:00am Mortgage Apps, 4/6 8:30am Import Prices, Mar 10:30am Oil Inventories, 4/6 2:00pm Beige Bk, Apr 2:00pm Treas. Statement, Mar	**12** 8:30am Int'l Trade, Feb 8:30am PPI, Mar 8:30am UI Claims, 4/7 9:45am Cons Cmft Indx, 4/8	**13** 8:30am CPI, Mar 10:00am Cons. Sentiment, Apr(p)
Apr 16 - 20	**16** 8:30am NY Fed Mfg. Surv., Apr 8:30am Retail Sales, Mar 9:00am Int'l Cap. Flows, Feb 10:00am Bus. Inventories, Feb 1:00pm NAHB Housing Indx, Apr	**17** 7:45am Wkly Chain Sales, 4/14 8:30am Housing Starts, Mar 9:15am Industrial Prod., Mar	**18** 7:00am Mortgage Apps, 4/13 10:30am Oil Inventories, 4/13	**19** 8:30am UI Claims, 4/14 9:45am Cons Cmft Indx, 4/15 10:00am Exist. Home Sales, Mar 10:00am Leading Indicators, Mar 10:00am Phil. Fed Survey, Apr	**20**
Apr 23 - 27	**23**	**24** 7:45am Wkly Chain Sales, 4/21 9:00am CS House Prices, Feb 10:00am Cons. Confidence, Apr 10:00am FHFA HPI, Feb 10:00am New Home Sales, Mar	**25** 7:00am Mortgage Apps, 4/20 8:30am Adv. Durables Ord., Mar 10:30am Oil Inventories, 4/20 2:15pm FOMC Meeting, Apr	**26** 8:30am UI Claims, 4/21 9:45am Cons Cmft Indx, 4/22 10:00am NAR PHSales Indx, Mar 11:00am KC Fed Mfg Survey, Apr	**27** 8:30am ECI, Mar 12Q1 8:30am GDP, 2012Q1 (A est) 10:00am Cons. Sentiment, Apr(f)
Apr 30 - May 4	**30** 8:30am Personal Income, Mar 9:45am ISM-Chicago Indx, Apr 10:00am HelpWantd OnLine, Apr 2:00pm Fed SLOOS, Q2 (apprx)	**May 1**	**2**	**3**	**4**

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May 2012

May 2012

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June 2012

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	Monday	Tuesday	Wednesday	Thursday	Friday
Apr 30 - May 4	**Apr 30**	**May 1** 7:45am Wkly Chain Sales, 4/28 10:00am Bus. Emp Dynam 11Q3 10:00am Construction, Mar 10:00am ISM Mfg., Apr 5:00pm Auto Sales, Apr	**2** 7:00am Mortgage Apps, 4/27 8:15am ADP Emp Indx, Apr 10:00am Factory Orders, Mar 10:30am Oil Inventories, 4/27	**3** 7:30am Challenger Layoffs, Apr 8:30am Productivity, 12Q1(p) 8:30am UI Claims, 4/28 9:45am Cons Cmft Indx, 4/29 10:00am ISM Non-Mfg., Apr 2:00pm Mnthly Chain Sales, Apr	**4** 6:00am Monster Emp. Indx, Apr 8:30am Employment, Apr
May 7 - 11	**7** 3:00pm Consumer Credit, Mar	**8** 7:45am Sml Bus. Conf., Apr 7:45am Wkly Chain Sales, 5/5 10:00am JOLTS, Mar	**9** 7:00am Mortgage Apps, 5/4 10:00am Wholesale Trade, Mar 10:30am Oil Inventories, 5/4	**10** 8:00am Blue Chip Forecast, May 8:30am Import Prices, Apr 8:30am Int'l Trade, Mar 8:30am UI Claims, 5/5 9:45am Cons Cmft Indx, 5/6 2:00pm Treas. Statement, Apr	**11** 8:30am PPI, Apr 10:00am Cons. Sentiment, May(p)
May 14 - 18	**14**	**15** 7:45am Wkly Chain Sales, 5/12 8:30am CPI, Apr 8:30am NY Fed Mfg. Surv., May 8:30am Retail Sales, Apr 9:00am Int'l Cap. Flows, Mar 10:00am Bus. Inventories, Mar 1:00pm NAHB Housing Indx, May	**16** 7:00am Mortgage Apps, 5/11 8:30am Housing Starts, Apr 9:15am Industrial Prod., Apr 10:30am Oil Inventories, 5/11	**17** 8:30am UI Claims, 5/12 9:45am Cons Cmft Indx, 5/13 10:00am Leading Indicators, Apr 10:00am Phil. Fed Survey, May	**18**
May 21 - 25	**21**	**22** 7:45am Wkly Chain Sales, 5/19 10:00am Exist. Home Sales, Apr	**23** 7:00am Mortgage Apps, 5/18 10:00am FHFA HPI, Mar & Q1 10:00am New Home Sales, Apr 10:30am Oil Inventories, 5/18	**24** 8:30am Adv. Durables Ord., Apr 8:30am UI Claims, 5/19 9:45am Cons Cmft Indx, 5/20 11:00am KC Fed Mfg Survey, May	**25** 10:00am Cons. Sentiment, May(f)
May 28 - Jun 1	**28** Memorial Day	**29** 7:45am Wkly Chain Sales, 5/26 9:00am CS House Prices, Mar 10:00am Cons. Confidence, May	**30** 7:00am Mortgage Apps, 5/25 10:00am HelpWantd OnLine, May 10:00am NAR PHSales Indx, Apr	**31** 7:30am Challenger Layoffs, May 8:15am ADP Emp Indx, May 8:30am Corp Prof, 2012Q1(p) 8:30am GDP, 2012Q1 (2 est) 8:30am UI Claims, 5/26 9:45am Cons Cmft Indx, 5/27 9:45am ISM-Chicago Indx, May 11:00am Oil Inventories, 5/25 2:00pm Mnthly Chain Sales, May	**Jun 1**

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June 2012

June 2012

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July 2012

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	Monday	Tuesday	Wednesday	Thursday	Friday
May 28 - Jun 1	**May 28**	**29**	**30**	**31**	**Jun 1** 6:00am Monster Emp. Indx, May 8:30am Employment, May 8:30am Personal Income, Apr 10:00am Construction, Apr 10:00am ISM Mfg., May 5:00pm Auto Sales, May
Jun 4 - 8	**4** 10:00am Factory Orders, Apr	**5** 7:45am Wkly Chain Sales, 6/2 10:00am ISM Non-Mfg., May	**6** 7:00am Mortgage Apps, 6/1 8:30am Productivity, 12Q1(r) 10:30am Oil Inventories, 6/1 2:00pm Beige Bk, Jun	**7** 8:30am UI Claims, 6/2 9:45am Cons Cmft Indx, 6/3 3:00pm Consumer Credit, Apr	**8** 8:30am Int'l Trade, Apr 10:00am Wholesale Trade, Apr
Jun 11 - 15	**11** 8:00am Blue Chip Forecast, Jun	**12** 7:45am Sml Bus. Conf., May 7:45am Wkly Chain Sales, 6/9 8:00am Manpw Otlk Q3 (apprx) 8:30am Import Prices, May 2:00pm Treas. Statement, May	**13** 7:00am Mortgage Apps, 6/8 8:30am PPI, May 8:30am Retail Sales, May 10:00am Bus. Inventories, Apr 10:30am Oil Inventories, 6/8	**14** 8:30am CPI, May 8:30am Current Account, 12Q1 8:30am UI Claims, 6/9 9:45am Cons Cmft Indx, 6/10 12:00pm Fed FoF, Q1 (apprx)	**15** 8:30am NY Fed Mfg. Surv., Jun 9:00am Int'l Cap. Flows, Apr 9:15am Industrial Prod., May 10:00am Cons. Sentiment, Jun(p)
Jun 18 - 22	**18** 1:00pm NAHB Housing Indx, Jun	**19** 7:45am Wkly Chain Sales, 6/16 8:30am Housing Starts, May 10:00am JOLTS, Apr	**20** 7:00am Mortgage Apps, 6/15 10:30am Oil Inventories, 6/15 2:15pm FOMC Meeting, Jun	**21** 8:30am UI Claims, 6/16 9:45am Cons Cmft Indx, 6/17 10:00am Exist. Home Sales, May 10:00am FHFA HPI, Apr 10:00am Leading Indicators, May 10:00am Phil. Fed Survey, Jun	**22**
Jun 25 - 29	**25** 10:00am New Home Sales, May	**26** 7:45am Wkly Chain Sales, 6/23 9:00am CS House Prices, Apr 10:00am Cons. Confidence, Jun	**27** 7:00am Mortgage Apps, 6/22 8:30am Adv. Durables Ord., May 10:00am NAR PHSales Indx, May 10:30am Oil Inventories, 6/22	**28** 8:30am Corp Prof, 2012Q1(r) 8:30am GDP, 2012Q1 (3 est) 8:30am UI Claims, 6/23 9:45am Cons Cmft Indx, 6/24 11:00am KC Fed Mfg Survey, Jun	**29** 8:30am Personal Income, May 9:45am ISM-Chicago Indx, Jun 10:00am Cons. Sentiment, Jun(f)

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July 2012

July 2012

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August 2012

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	Monday	Tuesday	Wednesday	Thursday	Friday
Jul 2 - 6	**Jul 2** 10:00am Construction, May 10:00am HelpWantd OnLine, Jun 10:00am ISM Mfg., Jun	**3** 7:45am Wkly Chain Sales, 6/30 10:00am Factory Orders, May 5:00pm Auto Sales, Jun	**4** Independence Day	**5** 7:00am Mortgage Apps, 6/29 7:30am Challenger Layoffs, Jun 8:15am ADP Emp Indx, Jun 8:30am UI Claims, 6/30 9:45am Cons Cmft Indx, 7/1 10:00am ISM Non-Mfg., Jun 11:00am Oil Inventories, 6/29 2:00pm Mnthly Chain Sales, Jun	**6** 6:00am Monster Emp. Indx, Jun 8:30am Employment, Jun
Jul 9 - 13	**9** 3:00pm Consumer Credit, May	**10** 7:45am Sml Bus. Conf., Jun 7:45am Wkly Chain Sales, 7/7 8:00am Blue Chip Forecast, Jul 10:00am JOLTS, May	**11** 7:00am Mortgage Apps, 7/6 8:30am Int'l Trade, May 10:00am Wholesale Trade, May 10:30am Oil Inventories, 7/6	**12** 8:30am Import Prices, Jun 8:30am UI Claims, 7/7 9:45am Cons Cmft Indx, 7/8 2:00pm Treas. Statement, Jun	**13** 8:30am PPI, Jun 10:00am Cons. Sentiment, Jul(p)
Jul 16 - 20	**16** 8:30am NY Fed Mfg. Surv., Jul 8:30am Retail Sales, Jun 10:00am Bus. Inventories, May	**17** 7:45am Wkly Chain Sales, 7/14 8:30am CPI, Jun 9:00am Int'l Cap. Flows, May 9:15am Industrial Prod., Jun 1:00pm NAHB Housing Indx, Jul	**18** 7:00am Mortgage Apps, 7/13 8:30am Housing Starts, Jun 10:30am Oil Inventories, 7/13 2:00pm Beige Bk, Jul	**19** 8:30am UI Claims, 7/14 9:45am Cons Cmft Indx, 7/15 10:00am Exist. Home Sales, Jun 10:00am Leading Indicators, Jun 10:00am Phil. Fed Survey, Jul	**20**
Jul 23 - 27	**23**	**24** 7:45am Wkly Chain Sales, 7/21 10:00am FHFA HPI, May	**25** 7:00am Mortgage Apps, 7/20 10:00am New Home Sales, Jun 10:30am Oil Inventories, 7/20	**26** 8:30am Adv. Durables Ord., Jun 8:30am UI Claims, 7/21 9:45am Cons Cmft Indx, 7/22 10:00am NAR PHSales Indx, Jun 11:00am KC Fed Mfg Survey, Jul	**27** 8:30am GDP, 2012Q2 (A est) 10:00am Cons. Sentiment, Jul(f)
Jul 30 - Aug 3	**30**	**31** 7:45am Wkly Chain Sales, 7/28 8:30am ECI, Jun 12Q2 8:30am Personal Income, Jun 9:00am CS House Prices, May 9:45am ISM-Chicago Indx, Jul 10:00am Cons. Confidence, Jul 2:15pm FOMC Meeting, Jul	**Aug 1**	**2**	**3**

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August 2012

August 2012

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September 2012

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	Monday	Tuesday	Wednesday	Thursday	Friday
Jul 30 - Aug 3	**Jul 30**	**31**	**Aug 1** 7:00am Mortgage Apps, 7/27 8:15am ADP Emp Indx, Jul 10:00am Construction, Jun 10:00am HelpWantd OnLine, Jul 10:00am ISM Mfg., Jul 10:30am Oil Inventories, 7/27 5:00pm Auto Sales, Jul	**2** 7:30am Challenger Layoffs, Jul 8:30am UI Claims, 7/28 9:45am Cons Cmft Indx, 7/29 10:00am Bus. Emp Dynam 11Q4 10:00am Factory Orders, Jun 2:00pm Mnthly Chain Sales, Jul	**3** 6:00am Monster Emp. Indx, Jul 8:30am Employment, Jul 10:00am ISM Non-Mfg., Jul
Aug 6 - 10	**6** 7:45am Wkly Chain Sales, 8/4 10:00am JOLTS, Jun 3:00pm Consumer Credit, Jun	**7** 7:45am Wkly Chain Sales, 8/4 10:00am JOLTS, Jun 3:00pm Consumer Credit, Jun	**8** 7:00am Mortgage Apps, 8/3 8:30am Productivity, 12Q2(p) 10:30am Oil Inventories, 8/3	**9** 8:30am Int'l Trade, Jun 8:30am UI Claims, 8/4 9:45am Cons Cmft Indx, 8/5 10:00am Wholesale Trade, Jun	**10** 8:00am Blue Chip Forecast, Aug 8:30am Import Prices, Jul 2:00pm Treas. Statement, Jul
Aug 13 - 17	**13** 2:00pm Fed SLOOS, Q3 (apprx)	**14** 7:45am Sml Bus. Conf., Jul 7:45am Wkly Chain Sales, 8/11 8:30am PPI, Jul 8:30am Retail Sales, Jul 10:00am Bus. Inventories, Jun	**15** 7:00am Mortgage Apps, 8/10 8:30am CPI, Jul 8:30am NY Fed Mfg. Surv., Aug 9:00am Int'l Cap. Flows, Jun 9:15am Industrial Prod., Jul 10:30am Oil Inventories, 8/10 1:00pm NAHB Housing Indx, Aug	**16** 8:30am Housing Starts, Jul 8:30am UI Claims, 8/11 9:45am Cons Cmft Indx, 8/12 10:00am Phil. Fed Survey, Aug	**17** 10:00am Cons. Sentiment, Aug(p) 10:00am Leading Indicators, Jul
Aug 20 - 24	**20**	**21** 7:45am Wkly Chain Sales, 8/18	**22** 7:00am Mortgage Apps, 8/17 10:00am Exist. Home Sales, Jul 10:30am Oil Inventories, 8/17	**23** 8:30am UI Claims, 8/18 9:45am Cons Cmft Indx, 8/19 10:00am FHFA HPI, Jun & Q2 10:00am New Home Sales, Jul	**24** 8:30am Adv. Durables Ord., Jul
Aug 27 - 31	**27**	**28** 7:45am Wkly Chain Sales, 8/25 9:00am CS House Prices, Jun 10:00am Cons. Confidence, Aug	**29** 7:00am Mortgage Apps, 8/24 8:30am Corp Prof, 2012Q2(p) 8:30am GDP, 2012Q2 (2 est) 10:00am NAR PHSales Indx, Jul 10:30am Oil Inventories, 8/24 2:00pm Beige Bk, Sep	**30** 8:30am Personal Income, Jul 8:30am UI Claims, 8/25 9:45am Cons Cmft Indx, 8/26 11:00am KC Fed Mfg Survey, Aug 2:00pm Mnthly Chain Sales, Aug	**31** 9:45am ISM-Chicago Indx, Aug 10:00am Cons. Sentiment, Aug(f) 10:00am Factory Orders, Jul

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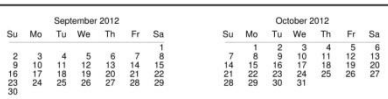
September 2012



	Monday	Tuesday	Wednesday	Thursday	Friday
Sep 3 - 7	**Sep 3** Labor Day	**4** 7:45am Wkly Chain Sales, 9/1 10:00am Construction, Jul 10:00am ISM Mfg., Aug 5:00pm Auto Sales, Aug	**5** 7:00am Mortgage Apps, 8/31 8:30am Productivity, 12Q2(r) 10:00am HelpWantd OnLine, Aug	**6** 7:30am Challenger Layoffs, Aug 8:15am ADP Emp Indx, Aug 8:30am UI Claims, 9/1 9:45am Cons Cmft Indx, 9/2 10:00am ISM Non-Mfg., Aug 11:00am Oil Inventories, 8/31	**7** 6:00am Monster Emp. Indx, Aug 8:30am Employment, Aug
Sep 10 - 14	**10** 8:00am Blue Chip Forecast, Sep 3:00pm Consumer Credit, Jul	**11** 7:45am Sml Bus. Conf., Aug 7:45am Wkly Chain Sales, 9/8 8:00am Manpw Otlk Q4 (apprx) 8:30am Int'l Trade, Jul 10:00am JOLTS, Jul	**12** 7:00am Mortgage Apps, 9/7 8:30am Import Prices, Aug 10:00am Wholesale Trade, Jul 10:30am Oil Inventories, 9/7 2:15pm FOMC Meeting, Sep	**13** 8:30am PPI, Aug 8:30am UI Claims, 9/8 9:45am Cons Cmft Indx, 9/9 2:00pm Treas. Statement, Aug	**14** 8:30am CPI, Aug 8:30am Retail Sales, Aug 9:15am Industrial Prod., Aug 10:00am Bus. Inventories, Jul 10:00am Cons. Sentiment, Sep(p)
Sep 17 - 21	**17** 8:30am NY Fed Mfg. Surv., Sep	**18** 7:45am Wkly Chain Sales, 9/15 8:30am Current Account, 12Q2 9:00am Int'l Cap. Flows, Jul 1:00pm NAHB Housing Indx, Sep	**19** 7:00am Mortgage Apps, 9/14 8:30am Housing Starts, Aug 10:00am Exist. Home Sales, Aug 10:30am Oil Inventories, 9/14	**20** 8:30am UI Claims, 9/15 9:45am Cons Cmft Indx, 9/16 10:00am Leading Indicators, Aug 10:00am Phil. Fed Survey, Sep	**21** 12:00pm Fed FoF, Q2 (apprx)
Sep 24 - 28	**24**	**25** 7:45am Wkly Chain Sales, 9/22 9:00am CS House Prices, Jul 10:00am Cons. Confidence, Sep 10:00am FHFA HPI, Jul	**26** 7:00am Mortgage Apps, 9/21 10:00am New Home Sales, Aug 10:30am Oil Inventories, 9/21	**27** 8:30am Adv. Durables Ord., Aug 8:30am Corp Prof, 2012Q2(r) 8:30am GDP, 2012Q2 (3 est) 8:30am UI Claims, 9/22 9:45am Cons Cmft Indx, 9/23 10:00am NAR PHSales Indx, Aug 11:00am KC Fed Mfg Survey, Sep	**28** 8:30am Personal Income, Aug 9:45am ISM-Chicago Indx, Sep 10:00am Cons. Sentiment, Sep(f)

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Note: Release dates or times may change.

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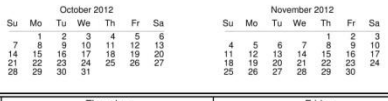
October 2012



	Monday	Tuesday	Wednesday	Thursday	Friday
Oct 1 - 5	**Oct 1** 10:00am Construction, Aug 10:00am ISM Mfg., Sep	**2** 7:45am Wkly Chain Sales, 9/29 5:00pm Auto Sales, Sep	**3** 7:00am Mortgage Apps, 9/28 8:15am ADP Emp Indx, Sep 10:00am HelpWantd OnLine, Sep 10:00am ISM Non-Mfg., Sep 10:30am Oil Inventories, 9/28	**4** 7:30am Challenger Layoffs, Sep 8:30am UI Claims, 9/29 9:45am Cons Cmft Indx, 9/30 10:00am Factory Orders, Aug 2:00pm Mnthly Chain Sales, Sep	**5** 6:00am Monster Emp. Indx, Sep 8:30am Employment, Sep 3:00pm Consumer Credit, Aug
Oct 8 - 12	**8** Columbus Day	**9** 7:45am Sml Bus. Conf., Sep 7:45am Wkly Chain Sales, 10/6	**10** 7:00am Mortgage Apps, 10/5 8:00am Blue Chip Forecast, Oct 10:00am JOLTS, Aug 10:00am Wholesale Trade, Aug 2:00pm Beige Bk, Oct	**11** 8:30am Import Prices, Sep 8:30am Int'l Trade, Aug 8:30am UI Claims, 10/6 9:45am Cons Cmft Indx, 10/7 11:00am Oil Inventories, 10/5 2:00pm Treas. Statement, Sep	**12** 8:30am PPI, Sep 10:00am Cons. Sentiment, Oct(p)
Oct 15 - 19	**15** 8:30am NY Fed Mfg. Surv., Oct 8:30am Retail Sales, Sep 10:00am Bus. Inventories, Aug	**16** 7:45am Wkly Chain Sales, 10/13 8:30am CPI, Sep 9:00am Int'l Cap. Flows, Aug 9:15am Industrial Prod., Sep 1:00pm NAHB Housing Indx, Oct	**17** 7:00am Mortgage Apps, 10/12 8:30am Housing Starts, Sep 10:30am Oil Inventories, 10/12	**18** 8:30am UI Claims, 10/13 9:45am Cons Cmft Indx, 10/14 10:00am Leading Indicators, Sep 10:00am Phil. Fed Survey, Oct	**19** 10:00am Exist. Home Sales, Sep
Oct 22 - 26	**22**	**23** 7:45am Wkly Chain Sales, 10/20	**24** 7:00am Mortgage Apps, 10/19 10:00am FHFA HPI, Aug 10:00am New Home Sales, Sep 10:30am Oil Inventories, 10/19 2:15pm FOMC Meeting, Oct	**25** 8:30am Adv. Durables Ord., Sep 8:30am UI Claims, 10/20 9:45am Cons Cmft Indx, 10/21 10:00am NAR PHSales Indx, Sep 11:00am KC Fed Mfg Survey, Oct	**26** 8:30am GDP, 2012Q3 (A est) 10:00am Cons. Sentiment, Oct(f)
Oct 29 - Nov 2	**29** 8:30am Personal Income, Sep	**30** 7:45am Wkly Chain Sales, 10/27 9:00am CS House Prices, Aug 10:00am Cons. Confidence, Oct	**31** 7:00am Mortgage Apps, 10/26 8:15am ADP Emp Indx, Oct 8:30am ECI, Sep 12Q3 9:45am ISM-Chicago Indx, Oct 10:00am HelpWantd OnLine, Oct 10:30am Oil Inventories, 10/26	**Nov 1**	**2**

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November 2012

November 2012

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December 2012

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	Monday	Tuesday	Wednesday	Thursday	Friday
Oct 29 - Nov 2	**Oct 29**	**30**	**31**	**Nov 1** 7:30am Challenger Layoffs, Oct 8:30am Productivity, 12Q3(p) 8:30am UI Claims, 10/27 9:45am Cons Cmft Indx, 10/28 10:00am Construction, Sep 10:00am ISM Mfg., Oct 2:00pm Mnthly Chain Sales, Oct 5:00pm Auto Sales, Oct	**2** 6:00am Monster Emp. Indx, Oct 8:30am Employment, Oct 10:00am Factory Orders, Sep
Nov 5 - 9	**5** 10:00am ISM Non-Mfg., Oct 2:00pm Fed SLOOS, Q4 (apprx)	**6** 7:45am Wkly Chain Sales, 11/3 10:00am JOLTS, Sep	**7** 7:00am Mortgage Apps, 11/2 10:30am Oil Inventories, 11/2 3:00pm Consumer Credit, Sep	**8** 8:30am Int'l Trade, Sep 8:30am UI Claims, 11/3 9:45am Cons Cmft Indx, 11/4	**9** 8:30am Import Prices, Oct 10:00am Cons. Sentiment, Nov(p) 10:00am Wholesale Trade, Sep
Nov 12 - 16	**12** Veterans Day Observed	**13** 7:45am Sml Bus. Conf., Oct 7:45am Wkly Chain Sales, 11/10 8:00am Blue Chip Forecast, Nov 2:00pm Treas. Statement, Oct	**14** 7:00am Mortgage Apps, 11/9 8:30am PPI, Oct 8:30am Retail Sales, Oct 10:00am Bus. Inventories, Sep	**15** 8:30am CPI, Oct 8:30am NY Fed Mfg. Surv., Nov 8:30am UI Claims, 11/10 9:45am Cons Cmft Indx, 11/11 10:00am Phil. Fed Survey, Nov 11:00am Oil Inventories, 11/9	**16** 9:00am Int'l Cap. Flows, Sep 9:15am Industrial Prod., Oct 10:00am Bus. Emp Dynam 12Q1
Nov 19 - 23	**19** 10:00am Exist. Home Sales, Oct 1:00pm NAHB Housing Indx, Nov	**20** 7:45am Wkly Chain Sales, 11/17 8:30am Housing Starts, Oct	**21** 7:00am Mortgage Apps, 11/16 8:30am UI Claims, 11/17 9:45am Cons Cmft Indx, 11/18 10:00am Cons. Sentiment, Nov(f) 10:00am Leading Indicators, Oct 10:30am Oil Inventories, 11/16	**22** Thanksgiving Day	**23**
Nov 26 - 30	**26**	**27** 7:45am Wkly Chain Sales, 11/24 8:30am Adv. Durables Ord., Oct 9:00am CS House Prices, Sep 10:00am Cons. Confidence, Nov 10:00am FHFA HPI, Sep & Q3	**28** 7:00am Mortgage Apps, 11/23 10:00am New Home Sales, Oct 10:30am Oil Inventories, 11/23 2:00pm Beige Bk, Dec	**29** 8:30am Corp Prof, 2012Q3(p) 8:30am GDP, 2012Q3 (2 est) 8:30am UI Claims, 11/24 9:45am Cons Cmft Indx, 11/25 10:00am NAR PHSales Indx, Oct 11:00am KC Fed Mfg Survey, Nov 2:00pm Mnthly Chain Sales, Nov	**30** 8:30am Personal Income, Oct 9:45am ISM-Chicago Indx, Nov

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December 2012

December 2012

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January 2013

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	Monday	Tuesday	Wednesday	Thursday	Friday
Dec 3 - 7	**Dec 3** 10:00am Construction, Oct 10:00am HelpWantd OnLine, Nov 10:00am ISM Mfg., Nov 5:00pm Auto Sales, Nov	**4** 7:45am Wkly Chain Sales, 12/1	**5** 7:00am Mortgage Apps, 11/30 8:15am ADP Emp Indx, Nov 8:30am Productivity, 12Q3(r) 10:00am Factory Orders, Oct 10:00am ISM Non-Mfg., Nov 10:30am Oil Inventories, 11/30	**6** 7:30am Challenger Layoffs, Nov 8:30am UI Claims, 12/1 9:45am Cons Cmft Indx, 12/2	**7** 6:00am Monster Emp. Indx, Nov 8:30am Employment, Nov 10:00am Cons. Sentiment, Dec(p) 3:00pm Consumer Credit, Oct
Dec 10 - 14	**10** 8:00am Blue Chip Forecast, Dec	**11** 7:45am Sml Bus. Conf., Nov 7:45am Wkly Chain Sales, 12/8 8:00am Manpw Otlk Q1 (apprx) 8:30am Int'l Trade, Oct 10:00am JOLTS, Oct 10:00am Wholesale Trade, Oct 2:15pm FOMC Meeting, Dec	**12** 7:00am Mortgage Apps, 12/7 8:30am Import Prices, Nov 10:30am Oil Inventories, 12/7 2:00pm Treas. Statement, Nov	**13** 8:30am PPI, Nov 8:30am Retail Sales, Nov 8:30am UI Claims, 12/8 9:45am Cons Cmft Indx, 12/9 10:00am Bus. Inventories, Oct 12:00pm Fed FoF, Q3 (apprx)	**14** 8:30am CPI, Nov 9:15am Industrial Prod., Nov
Dec 17 - 21	**17** 8:30am NY Fed Mfg. Surv., Dec 9:00am Int'l Cap. Flows, Oct	**18** 7:45am Wkly Chain Sales, 12/15 8:30am Current Account, 12Q3 1:00pm NAHB Housing Indx, Dec	**19** 7:00am Mortgage Apps, 12/14 8:30am Housing Starts, Nov 10:30am Oil Inventories, 12/14	**20** 8:30am Corp Prof, 2012Q3(r) 8:30am GDP, 2012Q3 (3 est) 8:30am UI Claims, 12/15 9:45am Cons Cmft Indx, 12/16 10:00am Exist. Home Sales, Nov 10:00am FHFA HPI, Oct 10:00am Leading Indicators, Nov 10:00am Phil. Fed Survey, Dec	**21** 8:30am Personal Income, Nov 10:00am Cons. Sentiment, Dec(f) 11:00am KC Fed Mfg Survey, Dec
Dec 24 - 28	**24** 8:30am Adv. Durables Ord., Nov	**25** Christmas Day	**26** 7:00am Mortgage Apps, 12/21 7:45am Wkly Chain Sales, 12/22 9:00am CS House Prices, Oct	**27** 8:30am UI Claims, 12/22 9:45am Cons Cmft Indx, 12/23 10:00am Cons. Confidence, Dec 10:00am New Home Sales, Nov	**28** 9:45am ISM-Chicago Indx, Dec 10:00am NAR PHSales Indx, Nov 11:00am Oil Inventories, 12/21
Dec 31 - Jan 4	**31**	**Jan 1, 13**	**2**	**3**	**4**

Office of Macroeconomic Analysis
Note: Release dates or times may change.

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January 2013

	Monday	Tuesday	Wednesday	Thursday	Friday
Dec 31 - Jan 4	Dec 31	Jan 1, 13 New Year's Day	2 7:00am Mortgage Apps, 12/28 7:45am Wkly Chain Sales, 12/29 10:00am Construction, Nov 10:00am HelpWantd OnLine, Dec 10:00am ISM Mfg., Dec	3 7:30am Challenger Layoffs, Dec 8:15am ADP Emp Indx, Dec 8:30am UI Claims, 12/29 9:45am Cons Cmft Indx, 12/30 2:00pm Mnthly Chain Sales, Dec 5:00pm Auto Sales, Dec	4 6:00am Monster Emp. Indx, Dec 8:30am Employment, Dec 10:00am Factory Orders, Nov 10:00am ISM Non-Mfg., Dec 1:00pm Oil Inventories, 12/28
Jan 7 - 11	7 10:00am ConfBrd ETI, Dec	8 7:45am NFIB Sml Bus. Conf., Dec 7:45am Wkly Chain Sales, 1/5 3:00pm Consumer Credit, Nov	9 7:00am Mortgage Apps, 1/4 10:30am Oil Inventories, 1/4	10 8:00am Blue Chip Forecast, Jan 8:30am UI Claims, 1/5 9:45am Cons Cmft Indx, 1/6 10:00am JOLTS, Nov 10:00am Wholesale Trade, Nov	11 8:30am Import Prices, Dec 8:30am Int'l Trade, Nov 2:00pm Treas. Statement, Dec
Jan 14 - 18	14	15 7:45am Wkly Chain Sales, 1/12 8:30am NY Fed Mfg. Surv., Jan 8:30am PPI, Dec 8:30am Retail Sales, Dec 10:00am Bus. Inventories, Nov	16 7:00am Mortgage Apps, 1/11 8:30am CPI, Dec 9:00am Int'l Cap. Flows, Nov 9:15am Industrial Prod., Dec 10:00am NAHB Housing Indx, Jan 11:00am Oil Inventories, 1/11 2:00pm Beige Bk, Jan*	17 8:30am Housing Starts, Dec 8:30am UI Claims, 1/12 9:45am Cons Cmft Indx, 1/13 10:00am Phil. Fed Survey, Jan	18 10:00am Cons. Sentiment, Jan(p)
Jan 21 - 25	21 M. L. King, Jr. Day	22 7:45am Wkly Chain Sales, 1/19 10:00am Exist. Home Sales, Dec	23 7:00am Mortgage Apps, 1/18 9:00am FHFA HPI, Nov	24 8:30am UI Claims, 1/19 9:45am Cons Cmft Indx, 1/20 10:00am Leading Indicators, Dec 11:00am KC Fed Mfg Survey, Jan 1:00pm Oil Inventories, 1/18	25 10:00am New Home Sales, Dec
Jan 28 - Feb 1	28 8:30am Adv. Durables Ord., Dec 10:00am NAR PHSales Indx, Dec	29 7:45am Wkly Chain Sales, 1/26 9:00am CS House Prices, Nov 10:00am Bus. Emp Dynam 12Q2 10:00am Cons. Confidence, Jan	30 7:00am Mortgage Apps, 1/25 8:15am ADP Emp Indx, Jan 8:30am GDP, 2012Q4 (A est) 10:00am HelpWantd OnLine, Jan 10:30am Oil Inventories, 1/25 2:15pm FOMC Meeting	31 7:30am Challenger Layoffs, Jan 8:30am ECI, Dec 2012Q4 8:30am Personal Income, Dec 8:30am UI Claims, 1/26 9:45am Cons Cmft Indx, 1/27 9:45am ISM-Chicago Indx, Jan	Feb 1

Office of Macroeconomic Analysis
Note: Release dates or times may change.
*Approximate release date.

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February 2013

	Monday	Tuesday	Wednesday	Thursday	Friday
Jan 28 - Feb 1	Jan 28	29	30	31	Feb 1 6:00am Monster Emp. Indx, Jan 8:30am Employment, Jan 10:00am Cons. Sentiment, Jan(f) 10:00am Construction, Dec 10:00am ISM Mfg., Jan 5:00pm Auto Sales, Jan
Feb 4 - 8	4 10:00am ConfBrd ETI, Jan 10:00am Factory Orders, Dec 2:00pm Fed SLOOS, Q1*	5 7:45am Wkly Chain Sales, 2/2 10:00am ISM Non-Mfg., Jan	6 7:00am Mortgage Apps, 2/1 10:30am Oil Inventories, 2/1	7 8:30am Productivity, 12Q4(p) 8:30am UI Claims, 2/2 9:45am Cons Cmft Indx, 2/3 2:00pm Mnthly Chain Sales, Jan 3:00pm Consumer Credit, Dec	8 8:30am Int'l Trade, Dec 10:00am Wholesale Trade, Dec
Feb 11 - 15	11 8:00am Blue Chip Forecast, Feb	12 7:45am NFIB Sml Bus. Conf., Jan 7:45am Wkly Chain Sales, 2/9 10:00am JOLTS, Dec 2:00pm Treas. Statement, Jan	13 7:00am Mortgage Apps, 2/8 8:30am Import Prices, Jan 8:30am Retail Sales, Jan 10:00am Bus. Inventories, Dec 10:30am Oil Inventories, 2/8	14 8:30am UI Claims, 2/9 9:45am Cons Cmft Indx, 2/10	15 8:30am NY Fed Mfg. Surv., Feb 9:00am Int'l Cap. Flows, Dec 9:15am Industrial Prod., Jan 10:00am Cons. Sentiment, Feb(p)
Feb 18 - 22	18 Presidents Day	19 7:45am Wkly Chain Sales, 2/16 10:00am NAHB Housing Indx, Feb	20 7:00am Mortgage Apps, 2/15 8:30am Housing Starts, Jan 8:30am PPI, Jan	21 8:30am CPI, Jan 8:30am UI Claims, 2/16 9:45am Cons Cmft Indx, 2/17 10:00am Exist. Home Sales, Jan 10:00am Leading Indicators, Jan 10:00am Phil. Fed Survey, Feb 1:00pm Oil Inventories, 2/15	22
Feb 25 - Mar 1	25	26 7:45am Wkly Chain Sales, 2/23 9:00am CS House Prices, Dec 9:00am FHFA HPI, Dec & Q4 10:00am Cons. Confidence, Feb 10:00am New Home Sales, Jan	27 7:00am Mortgage Apps, 2/22 8:30am Adv. Durables Ord., Jan 10:00am NAR PHSales Indx, Jan 10:30am Oil Inventories, 2/22	28 8:30am GDP, 2012Q4 (2 est) 8:30am UI Claims, 2/23 9:45am Cons Cmft Indx, 2/24 9:45am ISM-Chicago Indx, Feb 11:00am KC Fed Mfg Survey, Feb	Mar 1

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Note: Release dates or times may change.
*Approximate release date.

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March 2013

March 2013

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April 2013

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	Monday	Tuesday	Wednesday	Thursday	Friday
Feb 25 - Mar 1	Feb 25	26	27	28	Mar 1 8:30am Personal Income, Jan 10:00am Cons. Sentiment, Feb(f) 10:00am Construction, Jan 10:00am ISM Mfg., Feb 5:00pm Auto Sales, Feb
Mar 4 - 8	4	5 7:45am Wkly Chain Sales, 3/2 10:00am ISM Non-Mfg., Feb	6 7:00am Mortgage Apps, 3/1 8:15am ADP Emp Indx, Feb 10:00am Factory Orders, Jan 10:00am HelpWantd OnLine, Feb 10:30am Oil Inventories, 3/1 2:00pm Beige Bk, Mar*	7 7:30am Challenger Layoffs, Feb 8:30am Int'l Trade, Jan 8:30am Productivity, 12Q4(r) 8:30am UI Claims, 3/2 9:45am Cons Cmft Indx, 3/3 12:00pm Fed FoF, 2012Q4 2:00pm Mnthly Chain Sales, Feb 3:00pm Consumer Credit, Jan	8 6:00am Monster Emp. Indx, Feb 8:30am Employment, Feb 10:00am Wholesale Trade, Jan
Mar 11 - 15	11 8:00am Blue Chip Forecast, Mar 10:00am ConfBrd ETI, Feb	12 7:45am NFIB Sml Bus. Conf., Feb 7:45am Wkly Chain Sales, 3/9 8:00am Manpwr Outlk, 2013Q2 10:00am JOLTS, Jan 2:00pm Treas. Statement, Feb	13 7:00am Mortgage Apps, 3/8 8:30am Import Prices, Feb 8:30am Retail Sales, Feb 10:00am Bus. Inventories, Jan 10:30am Oil Inventories, 3/8	14 8:30am Current Acct, 2012Q4 8:30am PPI, Feb 8:30am UI Claims, 3/9 9:45am Cons Cmft Indx, 3/10	15 8:30am CPI, Feb 8:30am NY Fed Mfg. Surv., Mar 9:00am Int'l Cap. Flows, Jan 9:15am Industrial Prod., Feb 10:00am Cons. Sentiment, Mar(p)
Mar 18 - 22	18 10:00am NAHB Housing Indx, Mar	19 7:45am Wkly Chain Sales, 3/16 8:30am Housing Starts, Feb	20 7:00am Mortgage Apps, 3/15 10:30am Oil Inventories, 3/15 2:15pm FOMC Meeting	21 8:30am UI Claims, 3/16 9:00am FHFA HPI, Jan 9:45am Cons Cmft Indx, 3/17 10:00am Exist. Home Sales, Feb 10:00am Leading Indicators, Feb 10:00am Phil. Fed Survey, Mar	22
Mar 25 - 29	25	26 7:45am Wkly Chain Sales, 3/23 8:30am Adv. Durables Ord., Feb 9:00am CS House Prices, Jan 10:00am Cons. Confidence, Mar 10:00am New Home Sales, Feb	27 7:00am Mortgage Apps, 3/22 10:00am NAR PHSales Indx, Feb 10:30am Oil Inventories, 3/22	28 8:30am Corp Prof, 2012Q4(r) 8:30am GDP, 2012Q4 (3 est) 8:30am UI Claims, 3/23 9:45am Cons Cmft Indx, 3/24 11:00am KC Fed Mfg Survey, Mar	29 8:30am Personal Income, Feb 9:45am ISM-Chicago Indx, Mar 10:00am Cons. Sentiment, Mar(f)

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April 2013

April 2013

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May 2013

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	Monday	Tuesday	Wednesday	Thursday	Friday
Apr 1 - 5	Apr 1 10:00am Construction, Feb 10:00am ISM Mfg., Mar	2 7:45am Wkly Chain Sales, 3/30 10:00am Factory Orders, Feb 5:00pm Auto Sales, Mar	3 7:00am Mortgage Apps, 3/29 8:15am ADP Emp Indx, Mar 10:00am HelpWantd OnLine, Mar 10:00am ISM Non-Mfg., Mar 10:30am Oil Inventories, 3/29	4 7:30am Challenger Layoffs, Mar 8:30am UI Claims, 3/30 9:45am Cons Cmft Indx, 3/31	5 6:00am Monster Emp. Indx, Mar 8:30am Employment, Mar 8:30am Int'l Trade, Feb 3:00pm Consumer Credit, Feb
Apr 8 - 12	8 10:00am ConfBrd ETI, Mar	9 7:45am NFIB Sml Bus. Conf., Mar 7:45am Wkly Chain Sales, 4/6 10:00am JOLTS, Feb 10:00am Wholesale Trade, Feb	10 7:00am Mortgage Apps, 4/5 8:00am Blue Chip Forecast, Apr 10:30am Oil Inventories, 4/5 2:00pm Treas. Statement, Mar	11 8:30am Import Prices, Mar 8:30am UI Claims, 4/6 9:45am Cons Cmft Indx, 4/7 2:00pm Mnthly Chain Sales, Mar	12 8:30am PPI, Mar 8:30am Retail Sales, Mar 10:00am Bus. Inventories, Feb 10:00am Cons. Sentiment, Apr(p)
Apr 15 - 19	15 8:30am NY Fed Mfg. Surv., Apr 9:00am Int'l Cap. Flows, Feb 10:00am NAHB Housing Indx, Apr	16 7:45am Wkly Chain Sales, 4/13 8:30am CPI, Mar 8:30am Housing Starts, Mar 9:15am Industrial Prod., Mar	17 7:00am Mortgage Apps, 4/12 10:30am Oil Inventories, 4/12 2:00pm Beige Bk, Apr*	18 8:30am UI Claims, 4/13 9:45am Cons Cmft Indx, 4/14 10:00am Leading Indicators, Mar 10:00am Phil. Fed Survey, Apr	19
Apr 22 - 26	22 10:00am Exist. Home Sales, Mar	23 7:45am Wkly Chain Sales, 4/20 9:00am FHFA HPI, Feb 10:00am New Home Sales, Mar	24 7:00am Mortgage Apps, 4/19 8:30am Adv. Durables Ord., Mar 10:30am Oil Inventories, 4/19	25 8:30am UI Claims, 4/20 9:45am Cons Cmft Indx, 4/21 11:00am KC Fed Mfg Survey, Apr	26 8:30am GDP, 2013Q1 (A est) 10:00am Cons. Sentiment, Apr(f)
Apr 29 - May 3	29 8:30am Personal Income, Mar 10:00am NAR PHSales Indx, Mar	30 7:45am Wkly Chain Sales, 4/27 8:30am ECI, Mar 2013Q1 9:00am CS House Prices, Feb 9:45am ISM-Chicago Indx, Apr 10:00am Cons. Confidence, Apr	May 1	2	3

Office of Macroeconomic Analysis
Note: Release dates or times may change.
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May 2013

May 2013

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June 2013

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	Monday	Tuesday	Wednesday	Thursday	Friday
Apr 29 - May 3	Apr 29	30	May 1 7:00am Mortgage Apps, 4/26 8:15am ADP Emp Indx, Apr 10:00am Bus. Emp Dynam 12Q3 10:00am Construction, Mar 10:00am HelpWantd OnLine, Apr 10:00am ISM Mfg., Apr 10:30am Oil Inventories, 4/26 2:15pm FOMC Meeting 5:00pm Auto Sales, Apr	2 7:30am Challenger Layoffs, Apr 8:30am Int'l Trade, Mar 8:30am Productivity, 13Q1(p) 8:30am UI Claims, 4/27 9:45am Cons Cmft Indx, 4/28	3 6:00am Monster Emp. Indx, Apr 8:30am Employment, Apr 10:00am Factory Orders, Mar 10:00am ISM Non-Mfg., Apr
May 6 - 10	6 10:00am ConfBrd ETI, Apr 2:00pm Fed SLOOS, Q2*	7 7:45am Wkly Chain Sales, 5/4 10:00am JOLTS, Mar 3:00pm Consumer Credit, Mar	8 7:00am Mortgage Apps, 5/3 10:30am Oil Inventories, 5/3	9 8:30am UI Claims, 5/4 9:45am Cons Cmft Indx, 5/5 10:00am Wholesale Trade, Mar 2:00pm Mnthly Chain Sales, Apr	10 8:00am Blue Chip Forecast, May 2:00pm Treas. Statement, Apr
May 13 - 17	13 8:30am Retail Sales, Apr 10:00am Bus. Inventories, Mar	14 7:45am NFIB Sml Bus. Conf., Apr 7:45am Wkly Chain Sales, 5/11 8:30am Import Prices, Apr	15 7:00am Mortgage Apps, 5/10 8:30am NY Fed Mfg. Surv., May 8:30am PPI, Apr 9:00am Int'l Cap. Flows, Mar 9:15am Industrial Prod., Apr 10:00am NAHB Housing Indx, May 10:30am Oil Inventories, 5/10	16 8:30am CPI, Apr 8:30am Housing Starts, Apr 8:30am UI Claims, 5/11 9:45am Cons Cmft Indx, 5/12 10:00am Phil. Fed Survey, May	17 10:00am Cons. Sentiment, May(p) 10:00am Leading Indicators, Apr
May 20 - 24	20	21 7:45am Wkly Chain Sales, 5/18	22 7:00am Mortgage Apps, 5/17 10:00am Exist. Home Sales, Apr 10:30am Oil Inventories, 5/17	23 8:30am UI Claims, 5/18 9:00am FHFA HPI, Mar & Q1 9:45am Cons Cmft Indx, 5/19 10:00am New Home Sales, Apr 11:00am KC Fed Mfg Survey, May	24 8:30am Adv. Durables Ord., Apr
May 27 - 31	27 Memorial Day	28 7:45am Wkly Chain Sales, 5/25 9:00am CS House Prices, Mar 10:00am Cons. Confidence, May	29 7:00am Mortgage Apps, 5/24	30 8:30am Corp Prof, 2013Q1(p) 8:30am GDP, 2013Q1 (2 est) 8:30am UI Claims, 5/25 9:45am Cons Cmft Indx, 5/26 10:00am NAR PHSales Indx, Apr 1:00pm Oil Inventories, 5/24	31 8:30am Personal Income, Apr 9:45am ISM-Chicago Indx, May 10:00am Cons. Sentiment, May(f)

Office of Macroeconomic Analysis
Note: Release dates or times may change.
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June 2013

June 2013

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July 2013

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	Monday	Tuesday	Wednesday	Thursday	Friday
Jun 3 - 7	Jun 3 10:00am Construction, Apr 10:00am ISM Mfg., May 5:00pm Auto Sales, May	4 7:45am Wkly Chain Sales, 6/1 8:30am Int'l Trade, Apr	5 7:00am Mortgage Apps, 5/31 8:15am ADP Emp Indx, May 8:30am Productivity, 13Q1(r) 10:00am Factory Orders, Apr 10:00am HelpWantd OnLine, May 10:00am ISM Non-Mfg., May 10:30am Oil Inventories, 5/31 2:00pm Beige Bk, Jun*	6 7:30am Challenger Layoffs, May 8:30am UI Claims, 6/1 9:45am Cons Cmft Indx, 6/2 12:00pm Fed FoF, 2013Q1* 2:00pm Mnthly Chain Sales, May	7 6:00am Monster Emp. Indx, May 8:30am Employment, May 3:00pm Consumer Credit, Apr
Jun 10 - 14	10 8:00am Blue Chip Forecast, Jun 10:00am ConfBrd ETI, May	11 7:45am NFIB Sml Bus. Conf., May 7:45am Wkly Chain Sales, 6/8 8:00am Manpwr Outlk, 2013Q3 10:00am JOLTS, Apr 10:00am Wholesale Trade, Apr	12 7:00am Mortgage Apps, 6/7 10:30am Oil Inventories, 6/7 2:00pm Treas. Statement, May	13 8:30am Import Prices, May 8:30am Retail Sales, May 8:30am UI Claims, 6/8 9:45am Cons Cmft Indx, 6/9 10:00am Bus. Inventories, Apr	14 8:30am Current Acct, 2013Q1 8:30am PPI, May 9:15am Industrial Prod., May 10:00am Cons. Sentiment, Jun(p)
Jun 17 - 21	17 8:30am NY Fed Mfg. Surv., Jun 9:00am Int'l Cap. Flows, Apr 10:00am NAHB Housing Indx, Jun	18 7:45am Wkly Chain Sales, 6/15 8:30am CPI, May 8:30am Housing Starts, May	19 7:00am Mortgage Apps, 6/14 10:30am Oil Inventories, 6/14 2:15pm FOMC Meeting	20 8:30am UI Claims, 6/15 9:45am Cons Cmft Indx, 6/16 10:00am Exist. Home Sales, May 10:00am Leading Indicators, May 10:00am Phil. Fed Survey, Jun	21
Jun 24 - 28	24	25 7:45am Wkly Chain Sales, 6/22 8:30am Adv. Durables Ord., May 9:00am CS House Prices, Apr 9:00am FHFA HPI, Apr 10:00am Cons. Confidence, Jun 10:00am New Home Sales, May	26 7:00am Mortgage Apps, 6/21 8:30am Corp Prof, 2013Q1(r) 8:30am GDP, 2013Q1 (3 est) 10:30am Oil Inventories, 6/21	27 8:30am Personal Income, May 8:30am UI Claims, 6/22 9:45am Cons Cmft Indx, 6/23 10:00am NAR PHSales Indx, May 11:00am KC Fed Mfg Survey, Jun	28 9:45am ISM-Chicago Indx, Jun 10:00am Cons. Sentiment, Jun(f)

Office of Macroeconomic Analysis
Note: Release dates or times may change.
*Approximate release date.

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July 2013

July 2013

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August 2013

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	Monday	Tuesday	Wednesday	Thursday	Friday
Jul 1 - 5	Jul 1 10:00am Construction, May 10:00am ISM Mfg., Jun	2 7:45am Wkly Chain Sales, 6/29 10:00am Factory Orders, May 5:00pm Auto Sales, Jun	3 7:00am Mortgage Apps, 6/28 7:30am Challenger Layoffs, Jun 8:15am ADP Emp Indx, Jun 8:30am Int'l Trade, May 8:30am UI Claims, 6/29 9:45am Cons Cmft Indx, 6/30 10:00am HelpWantd OnLine, Jun 10:00am ISM Non-Mfg., Jun 11:00am Oil Inventories, 6/28	4 Independence Day	5 6:00am Monster Emp. Indx, Jun 8:30am Employment, Jun
Jul 8 - 12	8 3:00pm Consumer Credit, May	9 7:45am NFIB Sml Bus. Conf., Jun 7:45am Wkly Chain Sales, 7/6 10:00am Conf'Brd ETI, Jun 10:00am JOLTS, May	10 7:00am Mortgage Apps, 7/5 8:00am Blue Chip Forecast, Jul 10:00am Wholesale Trade, May 10:30am Oil Inventories, 7/5	11 8:30am Import Prices, Jun 8:30am UI Claims, 7/6 9:45am Cons Cmft Indx, 7/7 2:00pm Mnthly Chain Sales, Jun 2:00pm Treas. Statement, Jun	12 8:30am PPI, Jun 10:00am Cons. Sentiment, Jul(p)
Jul 15 - 19	15 8:30am NY Fed Mfg. Surv., Jul 8:30am Retail Sales, Jun 10:00am Bus. Inventories, May	16 7:45am Wkly Chain Sales, 7/13 8:30am CPI, Jun 9:00am Int'l Cap. Flows, May 9:15am Industrial Prod., Jun 10:00am NAHB Housing Indx, Jul	17 7:00am Mortgage Apps, 7/12 8:30am Housing Starts, Jun 10:30am Oil Inventories, 7/12 2:00pm Beige Bk, Jul*	18 8:30am UI Claims, 7/13 9:45am Cons Cmft Indx, 7/14 10:00am Leading Indicators, Jun 10:00am Phil. Fed Survey, Jul	19
Jul 22 - 26	22 10:00am Exist. Home Sales, Jun	23 7:45am Wkly Chain Sales, 7/20 9:00am FHFA HPI, May	24 7:00am Mortgage Apps, 7/19 10:00am New Home Sales, Jun 10:30am Oil Inventories, 7/19	25 8:30am Adv. Durables Ord., Jun 8:30am UI Claims, 7/20 9:45am Cons Cmft Indx, 7/21 11:00am KC Fed Mfg Survey, Jul	26 10:00am Cons. Sentiment, Jul(f)
Jul 29 - Aug 2	29 10:00am NAR PHSales Indx, Jun	30 7:45am Wkly Chain Sales, 7/27 9:00am CS House Prices, May 10:00am Bus. Emp Dynam 12Q4 10:00am Cons. Confidence, Jul	31 7:00am Mortgage Apps, 7/26 8:15am ADP Emp Indx, Jul 8:30am ECI, Jun 2013Q2 8:30am GDP, 2013Q2 (A est) 9:45am ISM-Chicago Indx, Jul 10:00am HelpWantd OnLine, Jul 10:30am Oil Inventories, 7/26 2:15pm FOMC Meeting	Aug 1	2

Office of Macroeconomic Analysis
Note: Release dates or times may change.
*Approximate release date.

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August 2013

August 2013

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September 2013

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	Monday	Tuesday	Wednesday	Thursday	Friday
Jul 29 - Aug 2	Jul 29	30	31	Aug 1 7:30am Challenger Layoffs, Jul 8:30am UI Claims, 7/27 9:45am Cons Cmft Indx, 7/28 10:00am Construction, Jun 10:00am ISM Mfg., Jul 5:00pm Auto Sales, Jul	2 6:00am Monster Emp. Indx, Jul 8:30am Employment, Jul 8:30am Personal Income, Jun 10:00am Factory Orders, Jun
Aug 5 - 9	5 10:00am Conf'Brd ETI, Jul 10:00am ISM Non-Mfg., Jul 2:00pm Fed SLOOS, Q3*	6 7:45am Wkly Chain Sales, 8/3 8:30am Int'l Trade, Jun 10:00am JOLTS, Jun	7 7:00am Mortgage Apps, 8/2 10:30am Oil Inventories, 8/2 3:00pm Consumer Credit, Jun	8 8:30am UI Claims, 8/3 9:45am Cons Cmft Indx, 8/4 2:00pm Mnthly Chain Sales, Jul	9 10:00am Wholesale Trade, Jun
Aug 12 - 16	12 8:00am Blue Chip Forecast, Aug 2:00pm Treas. Statement, Jul	13 7:45am NFIB Sml Bus. Conf., Jul 7:45am Wkly Chain Sales, 8/10 8:30am Import Prices, Jul 8:30am Retail Sales, Jul 10:00am Bus. Inventories, Jun	14 7:00am Mortgage Apps, 8/9 8:30am PPI, Jul 10:30am Oil Inventories, 8/9	15 8:30am CPI, Jul 8:30am NY Fed Mfg. Surv., Aug 8:30am UI Claims, 8/10 9:00am Int'l Cap. Flows, Jun 9:15am Industrial Prod., Jul 9:45am Cons Cmft Indx, 8/11 10:00am NAHB Housing Indx, Aug 10:00am Phil. Fed Survey, Aug	16 8:30am Housing Starts, Jul 8:30am Productivity, 13Q2(p) 10:00am Cons. Sentiment, Aug(p)
Aug 19 - 23	19	20 7:45am Wkly Chain Sales, 8/17	21 7:00am Mortgage Apps, 8/16 10:00am Exist. Home Sales, Jul 10:30am Oil Inventories, 8/16	22 8:30am UI Claims, 8/17 9:00am FHFA HPI, Jun & Q2 9:45am Cons Cmft Indx, 8/18 10:00am Leading Indicators, Jul 11:00am KC Fed Mfg Survey, Aug	23 10:00am New Home Sales, Jul
Aug 26 - 30	26 8:30am Adv. Durables Ord., Jul	27 7:45am Wkly Chain Sales, 8/24 9:00am CS House Prices, Jun 10:00am Cons. Confidence, Aug	28 7:00am Mortgage Apps, 8/23 10:00am NAR PHSales Indx, Jul 10:30am Oil Inventories, 8/23	29 8:30am Corp Prof, 2013Q2(p) 8:30am GDP, 2013Q2 (2 est) 8:30am UI Claims, 8/24 9:45am Cons Cmft Indx, 8/25	30 8:30am Personal Income, Jul 9:45am ISM-Chicago Indx, Aug 10:00am Cons. Sentiment, Aug(f)

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Note: Release dates or times may change.
*Approximate release date.

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September 2013

September 2013

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October 2013

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	Monday	Tuesday	Wednesday	Thursday	Friday
Sep 2 - 6	Sep 2 Labor Day	3 7:45am Wkly Chain Sales, 8/31 10:00am Construction, Jul 10:00am ISM Mfg., Aug	4 7:00am Mortgage Apps, 8/30 7:30am Challenger Layoffs, Aug 8:30am Int'l Trade, Jul 10:00am HelpWantd OnLine, Aug 2:00pm Beige Bk, Sep* 5:00pm Auto Sales, Aug	5 8:15am ADP Emp Indx, Aug 8:30am Productivity, 13Q2(r) 8:30am UI Claims, 8/31 9:45am Cons Cmft Indx, 9/1 10:00am Factory Orders, Jul 10:00am ISM Non-Mfg., Aug 1:00pm Oil Inventories, 8/30 2:00pm Mnthly Chain Sales, Aug	6 6:00am Monster Emp. Indx, Aug 8:30am Employment, Aug
Sep 9 - 13	9 10:00am ConfBrd ETI, Aug 3:00pm Consumer Credit, Jul	10 7:45am NFIB Sml Bus. Conf., Aug 7:45am Wkly Chain Sales, 9/7 8:00am Blue Chip Forecast, Sep 8:00am Manpwr Outlk, 2013Q4 10:00am JOLTS, Jul	11 7:00am Mortgage Apps, 9/6 10:00am Wholesale Trade, Jul 10:30am Oil Inventories, 9/6	12 8:30am Import Prices, Aug 8:30am UI Claims, 9/7 9:45am Cons Cmft Indx, 9/8 2:00pm Treas. Statement, Aug	13 8:30am PPI, Aug 8:30am Retail Sales, Aug 10:00am Bus. Inventories, Jul 10:00am Cons. Sentiment, Sep(p)
Sep 16 - 20	16 8:30am NY Fed Mfg. Surv., Sep 9:15am Industrial Prod., Aug	17 7:45am Wkly Chain Sales, 9/14 8:30am CPI, Aug 9:00am Int'l Cap. Flows, Jul 10:00am NAHB Housing Indx, Sep	18 7:00am Mortgage Apps, 9/13 8:30am Housing Starts, Aug 10:30am Oil Inventories, 9/13 2:15pm FOMC Meeting	19 8:30am Current Acct, 2013Q2 8:30am UI Claims, 9/14 9:45am Cons Cmft Indx, 9/15 10:00am Exist. Home Sales, Aug 10:00am Leading Indicators, Aug 10:00am Phil. Fed Survey, Sep 12:00pm Fed FoF, 2013Q2*	20
Sep 23 - 27	23	24 7:45am Wkly Chain Sales, 9/21 9:00am CS House Prices, Jul 9:00am FHFA HPI, Jul 10:00am Cons. Confidence, Sep	25 7:00am Mortgage Apps, 9/20 8:30am Adv. Durables Ord., Aug 10:00am New Home Sales, Aug 10:30am Oil Inventories, 9/20	26 8:30am Corp Prof, 2013Q2(r) 8:30am GDP, 2013Q2 (3 est) 8:30am UI Claims, 9/21 9:45am Cons Cmft Indx, 9/22 10:00am NAR PHSales Indx, Aug 11:00am KC Fed Mfg Survey, Sep	27 8:30am Personal Income, Aug 10:00am Cons. Sentiment, Sep(f)
Sep 30 - Oct 4	30 9:45am ISM-Chicago Indx, Sep	Oct 1	2	3	4

Office of Macroeconomic Analysis
Note: Release dates or times may change.
*Approximate release date.

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October 2013

October 2013

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November 2013

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17	18	19	20	21	22	23
24	25	26	27	28	29	30

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Sep 29 - Oct 5	Sep 29	30	Oct 1	2	3	4	5
			7:45am Wkly Chain Sales, 9/28 10:00am ISM Mfg., Sep 5:00pm Auto Sales, Sep	7:00am Mortgage Apps, 9/27 8:15am ADP Emp Indx, Sep 10:00am HelpWantd OnLine, Sep 10:30am Oil Inventories, 9/27	8:30am UI Claims, 9/28 9:45am Cons Cmft Indx, 9/29 10:00am ISM Non-Mfg., Sep		
Oct 6 - 12	6	7	8	9	10	11	12
		10:00am ConfBrd ETI, Sep 3:00pm Consumer Credit, Aug	7:45am NFIB Sml Bus. Conf., Sep 7:45am Wkly Chain Sales, 10/5	7:00am Mortgage Apps, 10/4 11:00am Oil Inventories, 10/4	8:00am Blue Chip Forecast, Oct 8:30am UI Claims, 10/5 9:45am Cons Cmft Indx, 10/6 2:00pm Mnthly Chain Sales, Sep	10:00am Cons. Sentiment, Oct(p)	
Oct 13 - 19	13	14	15	16	17	18	19
		Columbus Day	7:45am Wkly Chain Sales, 10/12 8:30am NY Fed Mfg. Surv., Oct	7:00am Mortgage Apps, 10/11 9:00am Int'l Cap. Flows, Aug 10:00am NAHB Housing Indx, Oct 2:00pm Beige Bk, Oct*	8:30am UI Claims, 10/12 9:45am Cons Cmft Indx, 10/13 10:00am Phil. Fed Survey, Oct 1:00pm Oil Inventories, 10/11		
Oct 20 - 26	20	21	22	23	24	25	26
		10:00am Exist. Home Sales, Sep	7:45am Wkly Chain Sales, 10/19 8:30am Employment, Sep 10:00am Construction, Aug	7:00am Mortgage Apps, 10/18 8:30am Import Prices, Sep 9:00am FHFA HPI, Aug 10:30am Oil Inventories, 10/18	8:30am Int'l Trade, Aug 8:30am UI Claims, 10/19 9:45am Cons Cmft Indx, 10/20 10:00am JOLTS, Aug 11:00am KC Fed Mfg Survey, Oct	8:30am Adv. Durables Ord., Sep 10:00am Cons. Sentiment, Oct(f) 10:00am Wholesale Trade, Aug	
Oct 27 - Nov 2	27	28	29	30	31	Nov 1	2
		9:15am Industrial Prod., Sep 10:00am NAR PHSales Indx, Sep	7:45am Wkly Chain Sales, 10/26 8:30am PPI, Sep 8:30am Retail Sales, Sep 9:00am CS House Prices, Aug 10:00am Bus. Inventories, Aug 10:00am Cons. Confidence, Oct	7:00am Mortgage Apps, 10/25 8:15am ADP Emp Indx, Oct 8:30am CPI, Sep 10:00am HelpWantd OnLine, Oct 10:30am Oil Inventories, 10/25 2:15pm FOMC Meeti 4:30pm Treas. Stmt,	8:30am UI Claims, 10/26 9:45am Cons Cmft Indx, 10/27 9:45am ISM-Chicago Indx, Oct		

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Note: Release dates or times may change. *Approximate release date.
October, November, and December have been revised due to Federal Government shutdown.

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November 2013

November 2013

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December 2013

Su	Mo	Tu	We	Th	Fr	Sa
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22	23	24	25	26	27	28
29	30	31				

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Oct 27 - Nov 2	Oct 27	28	29	30	31	Nov 1	2
						10:00am ISM Mfg., Oct 5:00pm Auto Sales, Oct	
Nov 3 - 9	3	4	5	6	7	8	9
		10:00am Factory Orders, Aug 10:00am Factory Orders, Sep 2:00pm Fed SLOOS, Q4*	7:45am Wkly Chain Sales, 11/2 10:00am ISM Non-Mfg., Oct	7:00am Mortgage Apps, 11/1 7:30am Challenger Layoffs, Oct 7:30am Challenger Layoffs, Sep 10:00am Leading Indicators, Sep 10:30am Oil Inventories, 11/1	8:30am GDP, 2013Q3 (A est) 8:30am UI Claims, 11/2 9:45am Cons Cmft Indx, 11/3 2:00pm Mnthly Chain Sales, Oct 3:00pm Consumer Credit, Sep	8:30am Employment, Oct 8:30am Personal Income, Sep 10:00am Cons. Sentiment, Nov(p)	
Nov 10 - 16	10	11	12	13	14	15	16
		Veterans Day	7:45am NFIB Sml Bus. Conf., Oct 7:45am Wkly Chain Sales, 11/9 10:00am ConfBrd ETI, Oct	7:00am Mortgage Apps, 11/8 2:00pm Treas. Statement, Oct	8:30am Int'l Trade, Sep 8:30am Productivity, 13Q3(p) 8:30am UI Claims, 11/9 9:45am Cons Cmft Indx, 11/10 1:00pm Oil Inventories, 11/8	8:00am Blue Chip Forecast, Nov 8:30am Import Prices, Oct 8:30am NY Fed Mfg. Surv., Nov 9:15am Industrial Prod., Oct 10:00am Wholesale Trade, Sep	
Nov 17 - 23	17	18	19	20	21	22	23
		9:00am Int'l Cap. Flows, Sep 10:00am NAHB Housing Indx, Nov	7:45am Wkly Chain Sales, 11/16 8:30am ECI, Sep 2013Q3	7:00am Mortgage Apps, 11/15 8:30am CPI, Oct 8:30am Retail Sales, Oct 10:00am Bus. Inventories, Sep 10:00am Exist. Home Sales, Oct 10:30am Oil Inventories, 11/15	8:30am PPI, Oct 8:30am UI Claims, 11/16 9:45am Cons Cmft Indx, 11/17 10:00am Phil. Fed Survey, Nov	10:00am JOLTS, Sep 11:00am KC Fed Mfg Survey, Nov	
Nov 24 - 30	24	25	26	27	28	29	30
		10:00am NAR PHSales Indx, Oct	7:45am Wkly Chain Sales, 11/23 8:30am Housing Starts, Oct. 8:30am Housing Starts, Sep 9:00am CS House Prices, Sep 9:00am FHFA HPI, Sep & Q3 10:00am Cons. Confi	7:00am Mortgage Apps, 11/22 8:30am Adv. Durables Ord., Oct 8:30am UI Claims, 11/23 9:45am Cons Cmft Indx, 11/24 10:00am Cons. Senti 10:00am Leading Ind 10:30am Oil Inventor	Thanksgiving Day	9:45am ISM-Chicago Indx, Nov	

Office of Macroeconomic Analysis

Note: Release dates or times may change. *Approximate release date.
October, November, and December have been revised due to Federal Government shutdown.

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December 2013

December 2013

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January 2014

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	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Dec 1 - 7	Dec 1	2	3	4	5	6	7
		10:00am Construction, Oct 10:00am Construction, Sep 10:00am ISM Mfg., Nov	7:45am Wkly Chain Sales, 11/30 5:00pm Auto Sales, Nov	7:00am Mortgage Apps, 11/29 8:15am ADP Emp Indx, Nov 8:30am Int'l Trade, O 10:00am HelpWantd 10:00am ISM Non-M 10:00am New Home 10:00am New Home 10:30am Oil Inventor 2:00pm Beige Bk, D	7:30am Challenger Layoffs, Nov 8:30am Corp Prof, 2013Q3(p) 8:30am GDP, 2013Q3 (2 est) 8:30am UI Claims, 11/30 9:45am Cons Cmft I 10:00am Factory Or 2:00pm Mnthly Chai	8:30am Employment, Nov 8:30am Personal Income, Oct 10:00am Cons. Sentiment, Dec(p) 3:00pm Consumer Credit, Oct	
Dec 8 - 14	8	9	10	11	12	13	14
		10:00am ConfBrd ETI, Nov 12:00pm Fed FoF, 2013Q3*	7:45am NFIB Sml Bus. Conf., Nov 7:45am Wkly Chain Sales, 12/7 8:00am Blue Chip Forecast, Dec 8:00am Manpwr Outl 10:00am Bus. Emp 10:00am JOLTS, Oct 10:00am Wholesale 2:00pm Treas. State	7:00am Mortgage Apps, 12/6 10:30am Oil Inventories, 12/6	8:30am Import Prices, Nov 8:30am Retail Sales, Nov 8:30am UI Claims, 12/7 9:45am Cons Cmft Indx, 12/8 10:00am Bus. Inventories, Oct	8:30am PPI, Nov	
Dec 15 - 21	15	16	17	18	19	20	21
		8:30am NY Fed Mfg. Surv., Dec 8:30am Productivity, 13Q3(r) 9:00am Int'l Cap. Flows, Oct 9:15am Industrial Prod., Nov	7:45am Wkly Chain Sales, 12/14 8:30am CPI, Nov 8:30am Current Acct, 2013Q3 TBA 10:00am NAHB Housing Indx, Dec	7:00am Mortgage Apps, 12/13 8:30am Housing Starts, Nov 10:30am Oil Inventories, 12/13 2:15pm FOMC Meeting	8:30am UI Claims, 12/14 9:45am Cons Cmft Indx, 12/15 10:00am Exist. Home Sales, Nov 10:00am Leading Indicators, Nov 10:00am Phil. Fed Survey, Dec	8:30am Corp Prof, 2013Q3(r) TBA 8:30am GDP, 2013Q3 (3 est) TBA 11:00am KC Fed Mfg Survey, Dec	
Dec 22 - 28	22	23	24	25	26	27	28
		8:30am Personal Income, Nov TBA 10:00am Cons. Sentiment, Dec(f)	7:45am Wkly Chain Sales, 12/21 8:30am Adv. Durables Ord., Nov 9:00am FHFA HPI, Oct 10:00am New Home Sales, Nov	Christmas Day	7:00am Mortgage Apps, 12/20 8:30am UI Claims, 12/21 9:45am Cons Cmft Indx, 12/22 1:00pm Oil Inventories, 12/20		
Dec 29 - Jan 4	29	30	31	Jan 1, 14	2	3	4
		10:00am NAR PHSales Indx, Nov	7:45am Wkly Chain Sales, 12/28 9:00am CS House Prices, Oct 9:45am ISM-Chicago Indx, Dec 10:00am Cons. Confidence, Dec				

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Note: Release dates or times may change. *Approximate release date.
October, November, and December have been revised due to Federal Government shutdown.

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January 2014

January 2014

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February 2014

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	Monday	Tuesday	Wednesday	Thursday	Friday
Dec 30 - Jan 3	Dec 30	31	Jan 1, 14 New Year's Day	2 8:30am UI Claims, 12/28 9:45am Cons Cmft Indx, 12/29 10:00am Construction, Nov 10:00am ISM Mfg., Dec	3 7:00am Mortgage Apps, 12/27 11:00am Oil Inventories, 12/27 5:00pm Auto Sales, Dec
Jan 6 - 10	6 10:00am Factory Orders, Nov 10:00am ISM Non-Mfg., Dec	7 8:30am Int'l Trade, Nov	8 7:00am Mortgage Apps, 1/3 8:15am ADP Emp Indx, Dec 10:00am HelpWantd OnLine, Dec 3:00pm Consumer Credit, Nov	9 7:30am Challenger Layoffs, Dec 8:30am UI Claims, 1/4 9:45am Cons Cmft Indx, 1/5 10:30am Oil Inventories, 1/3 2:00pm Mnthly Chain Sales, Dec	10 8:00am Blue Chip Forecast, Jan 8:30am Employment, Dec 10:00am Wholesale Trade, Nov
Jan 13 - 17	13 10:00am ConfBrd ETI, Dec 2:00pm Treas. Statement, Dec	14 7:45am NFIB Sml Bus. Conf., Dec 8:30am Import Prices, Dec 8:30am Retail Sales, Dec 10:00am Bus. Inventories, Nov	15 7:00am Mortgage Apps, 1/10 8:30am NY Fed Mfg. Surv., Jan 8:30am PPI, Dec 2:00pm Beige Bk, Jan*	16 8:30am CPI, Dec 8:30am UI Claims, 1/11 9:00am Int'l Cap. Flows, Nov 9:45am Cons Cmft Indx, 1/12 10:00am NAHB Housing Indx, Jan 10:00am Phil. Fed Survey, Jan 10:30am Oil Inventories, 1/10	17 8:30am Housing Starts, Dec 9:15am Industrial Prod., Dec 10:00am Cons. Sentiment, Jan(p) 10:00am JOLTS, Nov
Jan 20 - 24	20 M. L. King, Jr. Birthday	21	22 7:00am Mortgage Apps, 1/17	23 8:30am UI Claims, 1/18 9:00am FHFA HPI, Nov 9:45am Cons Cmft Indx, 1/19 10:00am Exist. Home Sales, Dec 10:00am Leading Indicators, Dec 11:00am Oil Inventories, 1/17	24
Jan 27 - 31	27 10:00am New Home Sales, Dec	28 8:30am Adv. Durables Ord., Dec 9:00am CS House Prices, Nov 10:00am Cons. Confidence, Jan	29 7:00am Mortgage Apps, 1/24 10:00am Bus. Emp Dynam 13Q2 2:00pm FOMC Meeting	30 8:30am GDP, 2013Q4 (A est) 8:30am UI Claims, 1/25 9:45am Cons Cmft Indx, 1/26 10:00am NAR PHSales Indx, Dec 10:30am Oil Inventories, 1/24	31 8:30am ECI, Dec 2013Q4 8:30am Personal Income, Dec 9:45am ISM-Chicago Indx, Jan 10:00am Cons. Sentiment, Jan(f)

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February 2014

February 2014

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March 2014

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	Monday	Tuesday	Wednesday	Thursday	Friday
Feb 3 - 7	Feb 3 10:00am Construction, Dec 10:00am ISM Mfg., Jan 2:00pm Fed SLOOS, Q1* 5:00pm Auto Sales, Jan	4 10:00am Factory Orders, Dec	5 7:00am Mortgage Apps, 1/31 8:15am ADP Emp Indx, Jan 10:00am ISM Non-Mfg., Jan	6 7:30am Challenger Layoffs, Jan 8:30am Int'l Trade, Dec 8:30am Productivity, 13Q4(p) 8:30am UI Claims, 2/1 9:45am Cons Cmft Indx, 2/2 10:30am Oil Inventories, 1/31 2:00pm Mnthly Chain Sales, Jan	7 8:30am Employment, Jan 3:00pm Consumer Credit, Dec
Feb 10 - 14	10 8:00am Blue Chip Forecast, Feb 10:00am ConfBrd ETI, Jan	11 7:45am NFIB Sml Bus. Conf., Jan 10:00am JOLTS, Dec 10:00am Wholesale Trade, Dec	12 7:00am Mortgage Apps, 2/7 2:00pm Treas. Statement, Jan	13 8:30am Retail Sales, Jan 8:30am UI Claims, 2/8 9:45am Cons Cmft Indx, 2/9 10:00am Bus. Inventories, Dec 10:30am Oil Inventories, 2/7	14 8:30am Import Prices, Jan 9:15am Industrial Prod., Jan 10:00am Cons. Sentiment, Feb(p)
Feb 17 - 21	17 Washington's Birthday	18 8:30am NY Fed Mfg. Surv., Feb 9:00am Int'l Cap. Flows, Dec 10:00am NAHB Housing Indx, Feb	19 7:00am Mortgage Apps, 2/14 8:30am Housing Starts, Jan 8:30am PPI, Jan	20 8:30am CPI, Jan 8:30am UI Claims, 2/15 9:45am Cons Cmft Indx, 2/16 10:00am Leading Indicators, Jan 10:00am Phil. Fed Survey, Feb 11:00am Oil Inventories, 2/14	21 10:00am Exist. Home Sales, Jan
Feb 24 - 28	24	25 9:00am CS House Prices, Dec 9:00am FHFA HPI, Dec & Q4 10:00am Cons. Confidence, Feb	26 7:00am Mortgage Apps, 2/21 10:00am New Home Sales, Jan	27 8:30am Adv. Durables Ord., Jan 8:30am UI Claims, 2/22 9:45am Cons Cmft Indx, 2/23 10:30am Oil Inventories, 2/21	28 8:30am GDP, 2013Q4 (2 est) 9:45am ISM-Chicago Indx, Feb 10:00am Cons. Sentiment, Feb(f) 10:00am NAR PHSales Indx, Jan

Office of Macroeconomic Analysis

Note: Release dates or times may change. *Approximate release date.

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March 2014

March 2014

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April 2014

Su	Mo	Tu	We	Th	Fr	Sa
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20	21	22	23	24	25	26
27	28	29	30			

	Monday	Tuesday	Wednesday	Thursday	Friday
Mar 3 - 7	Mar 3 8:30am Personal Income, Jan 10:00am Construction, Jan 10:00am ISM Mfg., Feb 5:00pm Auto Sales, Feb	4	5 7:00am Mortgage Apps, 2/28 8:15am ADP Emp Indx, Feb 10:00am HelpWantd OnLine, Feb 10:00am ISM Non-Mfg., Feb 2:00pm Beige Bk, Mar*	6 7:30am Challenger Layoffs, Feb 8:30am Productivity, 13Q4(r) 8:30am UI Claims, 3/1 9:45am Cons Cmft Indx, 3/2 10:00am Factory Orders, Jan 10:30am Oil Inventories, 2/28 12:00pm Fed Fin'l Accts, Q4 2:00pm Mnthly Chain Sales, Feb	7 8:30am Employment, Feb 8:30am Int'l Trade, Jan 3:00pm Consumer Credit, Jan
Mar 10 - 14	10 8:00am Blue Chip Forecast, Mar 10:00am ConfBrd ETI, Feb	11 7:45am NFIB Sml Bus. Conf., Feb 8:00am Manpwr Outlk, 2014Q2 10:00am JOLTS, Jan 10:00am Wholesale Trade, Jan	12 7:00am Mortgage Apps, 3/7 2:00pm Treas. Statement, Feb	13 8:30am Import Prices, Feb 8:30am Retail Sales, Feb 8:30am UI Claims, 3/8 9:45am Cons Cmft Indx, 3/9 10:00am Bus. Inventories, Jan 10:30am Oil Inventories, 3/7	14 8:30am PPI, Feb 10:00am Cons. Sentiment, Mar(p)
Mar 17 - 21	17 8:30am NY Fed Mfg. Surv., Mar 9:00am Int'l Cap. Flows, Jan 9:15am Industrial Prod., Feb 10:00am NAHB Housing Indx, Mar	18 8:30am CPI, Feb 8:30am Housing Starts, Feb	19 7:00am Mortgage Apps, 3/14 8:30am Current Acct, 2013Q4 2:00pm FOMC Mtg&Projection	20 8:30am UI Claims, 3/15 9:45am Cons Cmft Indx, 3/16 10:00am Exist. Home Sales, Feb 10:00am Leading Indicators, Feb 10:00am Phil. Fed Survey, Mar 10:30am Oil Inventories, 3/14	21
Mar 24 - 28	24	25 9:00am CS House Prices, Jan 9:00am FHFA HPI, Jan 10:00am Cons. Confidence, Mar 10:00am New Home Sales, Feb	26 7:00am Mortgage Apps, 3/21 8:30am Adv. Durables Ord., Feb	27 8:30am Corp Prof, 2013Q4(r) 8:30am GDP, 2013Q4 (3 est) 8:30am UI Claims, 3/22 9:45am Cons Cmft Indx, 3/23 10:00am NAR PHSales Indx, Feb 10:30am Oil Inventories, 3/21	28 8:30am Personal Income, Feb 10:00am Cons. Sentiment, Mar(f)
Mar 31 - Apr 4	31 9:45am ISM-Chicago Indx, Mar	Apr 1	2	3	4

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April 2014

April 2014

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May 2014

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	Monday	Tuesday	Wednesday	Thursday	Friday
Mar 31 - Apr 4	Mar 31	Apr 1 10:00am Construction, Feb 10:00am ISM Mfg., Mar 5:00pm Auto Sales, Mar	2 7:00am Mortgage Apps, 3/28 8:15am ADP Emp Indx, Mar 10:00am Factory Orders, Feb 10:00am HelpWantd OnLine, Mar	3 7:30am Challenger Layoffs, Mar 8:30am Int'l Trade, Feb 8:30am UI Claims, 3/29 9:45am Cons Cmft Indx, 3/30 10:00am ISM Non-Mfg., Mar 10:30am Oil Inventories, 3/28	4 8:30am Employment, Mar
Apr 7 - 11	7 10:00am ConfBrd ETI, Mar 3:00pm Consumer Credit, Feb	8 7:45am NFIB Sml Bus. Conf., Mar 10:00am JOLTS, Feb	9 7:00am Mortgage Apps, 4/4 10:00am Wholesale Trade, Feb	10 8:00am Blue Chip Forecast, Apr 8:30am Import Prices, Mar 8:30am UI Claims, 4/5 9:45am Cons Cmft Indx, 4/6 10:30am Oil Inventories, 4/4 2:00pm Mnthly Chain Sales, Mar 2:00pm Treas. Statement, Mar	11 8:30am PPI, Mar 10:00am Cons. Sentiment, Apr(p)
Apr 14 - 18	14 8:30am Retail Sales, Mar 10:00am Bus. Inventories, Feb	15 8:30am CPI, Mar 8:30am NY Fed Mfg. Surv., Apr 9:00am Int'l Cap. Flows, Feb 10:00am NAHB Housing Indx, Apr	16 7:00am Mortgage Apps, 4/11 8:30am Housing Starts, Mar 9:15am Industrial Prod., Mar 2:00pm Beige Bk, Apr*	17 8:30am UI Claims, 4/12 9:45am Cons Cmft Indx, 4/13 10:00am Phil. Fed Survey, Apr 10:30am Oil Inventories, 4/11	18 10:00am Leading Indicators, Mar
Apr 21 - 25	21	22 9:00am FHFA HPI, Feb 10:00am Exist. Home Sales, Mar	23 7:00am Mortgage Apps, 4/18 10:00am New Home Sales, Mar	24 8:30am Adv. Durables Ord., Mar 8:30am UI Claims, 4/19 9:45am Cons Cmft Indx, 4/20 10:30am Oil Inventories, 4/18	25 10:00am Cons. Sentiment, Apr(f)
Apr 28 - May 2	28 10:00am NAR PHSales Indx, Mar	29 9:00am CS House Prices, Feb 10:00am Bus. Emp Dynam 13Q3 10:00am Cons. Confidence, Apr	30 7:00am Mortgage Apps, 4/25 8:15am ADP Emp Indx, Apr 8:30am ECI, Mar 2014Q1 8:30am GDP, 2014Q1 (A est) 9:45am ISM-Chicago Indx, Apr 10:00am HelpWantd OnLine, Apr 2:00pm FOMC Meeting	May 1	2

Office of Macroeconomic Analysis

Note: Release dates or times may change. *Approximate release date.

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May 2014

May 2014

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June 2014

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	Monday	Tuesday	Wednesday	Thursday	Friday
Apr 28 - May 2	Apr 28	29	30	May 1 7:30am Challenger Layoffs, Apr 8:30am Personal Income, Mar 8:30am UI Claims, 4/26 9:45am Cons Cmft Indx, 4/27 10:00am Construction, Mar 10:00am ISM Mfg., Apr 10:30am Oil Inventories, 4/25 5:00pm Auto Sales, Apr	2 8:30am Employment, Apr 10:00am Factory Orders, Mar
May 5 - 9	5 10:00am ConfBrd ETI, Apr 10:00am ISM Non-Mfg., Apr 2:00pm Fed SLOOS, Q2*	6 8:30am Int'l Trade, Mar	7 7:00am Mortgage Apps, 5/2 8:30am Productivity, 14Q1(p) 3:00pm Consumer Credit, Mar	8 8:30am UI Claims, 5/3 9:45am Cons Cmft Indx, 5/4 10:30am Oil Inventories, 5/2 2:00pm Mnthly Chain Sales, Apr	9 10:00am JOLTS, Mar 10:00am Wholesale Trade, Mar
May 12 - 16	12 8:00am Blue Chip Forecast, May 2:00pm Treas. Statement, Apr	13 7:45am NFIB Sml Bus. Conf., Apr 8:30am Import Prices, Apr 8:30am Retail Sales, Apr 10:00am Bus. Inventories, Mar	14 7:00am Mortgage Apps, 5/9 8:30am PPI, Apr	15 8:30am CPI, Apr 8:30am NY Fed Mfg. Surv., May 8:30am UI Claims, 5/10 9:00am Int'l Cap. Flows, Mar 9:15am Industrial Prod., Apr 9:45am Cons Cmft Indx, 5/11 10:00am NAHB Housing Indx, May 10:00am Phil. Fed Survey, May 10:30am Oil Inventories, 5/9	16 8:30am Housing Starts, Apr 10:00am Cons. Sentiment, May(p)
May 19 - 23	19	20	21 7:00am Mortgage Apps, 5/16	22 8:30am UI Claims, 5/17 9:45am Cons Cmft Indx, 5/18 10:00am Exist. Home Sales, Apr 10:00am Leading Indicators, Apr 10:30am Oil Inventories, 5/16	23 10:00am New Home Sales, Apr
May 26 - 30	26 Memorial Day	27 8:30am Adv. Durables Ord., Apr 9:00am CS House Prices, Mar 9:00am FHFA HPI, Mar & Q1 10:00am Cons. Confidence, May	28 7:00am Mortgage Apps, 5/23	29 8:30am Corp Prof, 2014Q1(p) 8:30am GDP, 2014Q1 (2 est) 8:30am UI Claims, 5/24 9:45am Cons Cmft Indx, 5/25 10:00am NAR PHSales Indx, Apr 11:00am Oil Inventories, 5/23	30 8:30am Personal Income, Apr 9:45am ISM-Chicago Indx, May 10:00am Cons. Sentiment, May(f)

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Note: Release dates or times may change. *Approximate release date.

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June 2014

June 2014

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July 2014

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	Monday	Tuesday	Wednesday	Thursday	Friday
Jun 2 - 6	Jun 2 10:00am Construction, Apr 10:00am ISM Mfg., May	3 10:00am Factory Orders, Apr 5:00pm Auto Sales, May	4 7:00am Mortgage Apps, 5/30 8:15am ADP Emp Indx, May 8:30am Int'l Trade, Apr 8:30am Productivity, 14Q1(r) 10:00am HelpWantd OnLine, May 10:00am ISM Non-Mfg., May 2:00pm Beige Bk, Jun*	5 7:30am Challenger Layoffs, May 8:30am UI Claims, 5/31 9:45am Cons Cmft Indx, 6/1 10:30am Oil Inventories, 5/30 12:00pm Fed Fin'l Accts, Q1* 2:00pm Mnthly Chain Sales, May	6 8:30am Employment, May 3:00pm Consumer Credit, Apr
Jun 9 - 13	9 10:00am ConfBrd ETI, May	10 7:45am NFIB Sml Bus. Conf., May 8:00am Blue Chip Forecast, Jun 8:00am Manpwr Outlk, 2014Q3 10:00am JOLTS, Apr 10:00am Wholesale Trade, Apr	11 7:00am Mortgage Apps, 6/6 2:00pm Treas. Statement, May	12 8:30am Import Prices, May 8:30am Retail Sales, May 8:30am UI Claims, 6/7 9:45am Cons Cmft Indx, 6/8 10:00am Bus. Inventories, Apr 10:30am Oil Inventories, 6/6	13 8:30am PPI, May 10:00am Cons. Sentiment, Jun(p)
Jun 16 - 20	16 8:30am NY Fed Mfg. Surv., Jun 9:00am Int'l Cap. Flows, Apr 9:15am Industrial Prod., May 10:00am NAHB Housing Indx, Jun	17 8:30am CPI, May 8:30am Housing Starts, May	18 7:00am Mortgage Apps, 6/13 8:30am Current Acct, 2014Q1 2:00pm FOMC Mtg&Projection	19 8:30am UI Claims, 6/14 9:45am Cons Cmft Indx, 6/15 10:00am Leading Indicators, May 10:00am Phil. Fed Survey, Jun 10:30am Oil Inventories, 6/13	20
Jun 23 - 27	23 10:00am Exist. Home Sales, May	24 9:00am CS House Prices, Apr 9:00am FHFA HPI, Apr 10:00am Cons. Confidence, Jun 10:00am New Home Sales, May	25 7:00am Mortgage Apps, 6/20 8:30am Adv. Durables Ord., May 8:30am Corp Prof, 2014Q1(r) 8:30am GDP, 2014Q1 (3 est)	26 8:30am Personal Income, May 8:30am UI Claims, 6/21 9:45am Cons Cmft Indx, 6/22 10:30am Oil Inventories, 6/20	27 10:00am Cons. Sentiment, Jun(f)
Jun 30 - Jul 4	30 9:45am ISM-Chicago Indx, Jun 10:00am NAR PHSales Indx, May	Jul 1	2	3	4

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July 2014

July 2014

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August 2014

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	Monday	Tuesday	Wednesday	Thursday	Friday
Jun 30 - Jul 4	Jun 30	Jul 1 10:00am Construction, May 10:00am ISM Mfg., Jun 5:00pm Auto Sales, Jun	2 7:00am Mortgage Apps, 6/27 7:30am Challenger Layoffs, Jun 8:15am ADP Emp Indx, Jun 10:00am Factory Orders, May 10:00am HelpWantd OnLine, Jun	3 8:30am Employment, Jun 8:30am Int'l Trade, May 8:30am UI Claims, 6/28 9:45am Cons Cmft Indx, 6/29 10:00am ISM Non-Mfg., Jun 10:30am Oil Inventories, 6/27	4 Independence Day
Jul 7 - 11	7 10:00am ConfBrd ETI, Jun	8 7:45am NFIB Sml Bus. Conf., Jun 10:00am JOLTS, May 3:00pm Consumer Credit, May	9 7:00am Mortgage Apps, 7/4	10 8:00am Blue Chip Forecast, Jul 8:30am UI Claims, 7/5 9:45am Cons Cmft Indx, 7/6 10:00am Wholesale Trade, May 10:30am Oil Inventories, 7/4 2:00pm Mnthly Chain Sales, Jun	11 2:00pm Treas. Statement, Jun
Jul 14 - 18	14	15 8:30am Import Prices, Jun 8:30am NY Fed Mfg. Surv., Jul 8:30am Retail Sales, Jun 10:00am Bus. Inventories, May	16 7:00am Mortgage Apps, 7/11 8:30am PPI, Jun 9:00am Int'l Cap. Flows, May 9:15am Industrial Prod., Jun 10:00am NAHB Housing Indx, Jul 2:00pm Beige Bk, Jul*	17 8:30am Housing Starts, Jun 8:30am UI Claims, 7/12 9:45am Cons Cmft Indx, 7/13 10:00am Phil. Fed Survey, Jul 10:30am Oil Inventories, 7/11	18 10:00am Cons. Sentiment, Jul(p) 10:00am Leading Indicators, Jun
Jul 21 - 25	21	22 8:30am CPI, Jun 9:00am FHFA HPI, May 10:00am Exist. Home Sales, Jun	23 7:00am Mortgage Apps, 7/18	24 8:30am UI Claims, 7/19 9:45am Cons Cmft Indx, 7/20 10:00am New Home Sales, Jun 10:30am Oil Inventories, 7/18	25 8:30am Adv. Durables Ord., Jun
Jul 28 - Aug 1	28 10:00am NAR PHSales Indx, Jun	29 9:00am CS House Prices, May 10:00am Cons. Confidence, Jul	30 7:00am Mortgage Apps, 7/25 8:15am ADP Emp Indx, Jul 8:30am GDP, 2014Q2 (A est) 10:00am Bus. Emp Dynam 13Q4 10:00am HelpWantd OnLine, Jul 2:00pm FOMC Meeting	31 7:30am Challenger Layoffs, Jul 8:30am ECI, Jun 2014Q2 8:30am UI Claims, 7/26 9:45am Cons Cmft Indx, 7/27 9:45am ISM-Chicago Indx, Jul 10:30am Oil Inventories, 7/25	Aug 1

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August 2014

August 2014

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September 2014

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	Monday	Tuesday	Wednesday	Thursday	Friday
Jul 28 - Aug 1	Jul 28	29	30	31	Aug 1 8:30am Employment, Jul 8:30am Personal Income, Jun 10:00am Cons. Sentiment, Jul(f) 10:00am Construction, Jun 10:00am ISM Mfg., Jul 5:00pm Auto Sales, Jul
Aug 4 - 8	4 10:00am ConfBrd ETI, Jul 2:00pm Fed SLOOS, Q3*	5 10:00am Factory Orders, Jun 10:00am ISM Non-Mfg., Jul	6 7:00am Mortgage Apps, 8/1 8:30am Int'l Trade, Jun	7 8:30am UI Claims, 8/2 9:45am Cons Cmft Indx, 8/3 10:30am Oil Inventories, 8/1 2:00pm Mnthly Chain Sales, Jul 3:00pm Consumer Credit, Jun	8 8:30am Productivity, 14Q2(p) 10:00am Wholesale Trade, Jun
Aug 11 - 15	11 8:00am Blue Chip Forecast, Aug	12 7:45am NFIB Sml Bus. Conf., Jul 10:00am JOLTS, Jun 2:00pm Treas. Statement, Jul	13 7:00am Mortgage Apps, 8/8 8:30am Retail Sales, Jul 10:00am Bus. Inventories, Jun	14 8:30am Import Prices, Jul 8:30am UI Claims, 8/9 9:45am Cons Cmft Indx, 8/10 10:30am Oil Inventories, 8/8	15 8:30am NY Fed Mfg. Surv., Aug 8:30am PPI, Jul 9:00am Int'l Cap. Flows, Jun 9:15am Industrial Prod., Jul 10:00am Cons. Sentiment, Aug(p)
Aug 18 - 22	18 10:00am NAHB Housing Indx, Aug	19 8:30am CPI, Jul 8:30am Housing Starts, Jul	20 7:00am Mortgage Apps, 8/15	21 8:30am UI Claims, 8/16 9:45am Cons Cmft Indx, 8/17 10:00am Exist. Home Sales, Jul 10:00am Leading Indicators, Jul 10:00am Phil. Fed Survey, Aug 10:30am Oil Inventories, 8/15	22
Aug 25 - 29	25 10:00am New Home Sales, Jul	26 8:30am Adv. Durables Ord., Jul 9:00am CS House Prices, Jun 9:00am FHFA HPI, Jun & Q2 10:00am Cons. Confidence, Aug	27 7:00am Mortgage Apps, 8/22	28 8:30am Corp Prof, 2014Q2(p) 8:30am GDP, 2014Q2 (2 est) 8:30am UI Claims, 8/23 9:45am Cons Cmft Indx, 8/24 10:00am NAR PHSales Indx, Jul 10:30am Oil Inventories, 8/22	29 8:30am Personal Income, Jul 9:45am ISM-Chicago Indx, Aug 10:00am Cons. Sentiment, Aug(f)

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September 2014

September 2014

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October 2014

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	Monday	Tuesday	Wednesday	Thursday	Friday
Sep 1 - 5	Sep 1 Labor Day	2 10:00am Construction, Jul 10:00am ISM Mfg., Aug	3 7:00am Mortgage Apps, 8/29 10:00am Factory Orders, Jul 10:00am HelpWantd OnLine, Aug 2:00pm Beige Bk, Sep* 5:00pm Auto Sales, Aug	4 7:30am Challenger Layoffs, Aug 8:15am ADP Emp Indx, Aug 8:30am Int'l Trade, Jul 8:30am Productivity, 14Q2(r) 8:30am UI Claims, 8/30 9:45am Cons Cmft Indx, 8/31 10:00am ISM Non-Mfg., Aug 11:00am Oil Inventories, 8/29 2:00pm Mnthly Chain Sales, Aug	5 8:30am Employment, Aug
Sep 8 - 12	8 10:00am ConfBrd ETI, Aug 3:00pm Consumer Credit, Jul	9 7:45am NFIB Sml Bus. Conf., Aug 8:00am Manpwr Outlk, 2014Q4 10:00am JOLTS, Jul	10 7:00am Mortgage Apps, 9/5 8:00am Blue Chip Forecast, Sep 10:00am Wholesale Trade, Jul	11 8:30am UI Claims, 9/6 9:45am Cons Cmft Indx, 9/7 10:30am Oil Inventories, 9/5 2:00pm Treas. Statement, Aug	12 8:30am Import Prices, Aug 8:30am Retail Sales, Aug 10:00am Bus. Inventories, Jul 10:00am Cons. Sentiment, Sep(p)
Sep 15 - 19	15 8:30am NY Fed Mfg. Surv., Sep 9:15am Industrial Prod., Aug	16 8:30am PPI, Aug 9:00am Int'l Cap. Flows, Jul	17 7:00am Mortgage Apps, 9/12 8:30am CPI, Aug 8:30am Current Acct, 2014Q2 10:00am NAHB Housing Indx, Sep 2:00pm FOMC Mtg&Projection	18 8:30am Housing Starts, Aug 8:30am UI Claims, 9/13 9:45am Cons Cmft Indx, 9/14 10:00am Phil. Fed Survey, Sep 10:30am Oil Inventories, 9/12	19 10:00am Leading Indicators, Aug
Sep 22 - 26	22 10:00am Exist. Home Sales, Aug	23 9:00am FHFA HPI, Jul	24 7:00am Mortgage Apps, 9/19 10:00am New Home Sales, Aug 12:00pm Fed Fin'l Accts, Q2*	25 8:30am Adv. Durables Ord., Aug 8:30am UI Claims, 9/20 9:45am Cons Cmft Indx, 9/21 10:30am Oil Inventories, 9/19	26 8:30am Corp Prof, 2014Q2(r) 8:30am GDP, 2014Q2 (3 est) 10:00am Cons. Sentiment, Sep(f)
Sep 29 - Oct 3	29 8:30am Personal Income, Aug 10:00am NAR PHSales Indx, Aug	30 9:00am CS House Prices, Jul 9:45am ISM-Chicago Indx, Sep 10:00am Cons. Confidence, Sep	Oct 1	2	3

Office of Macroeconomic Analysis

Note: Release dates or times may change. *Approximate release date.

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October 2014

October 2014

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November 2014

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	Monday	Tuesday	Wednesday	Thursday	Friday
Sep 29 - Oct 3	Sep 29	30	Oct 1	2	3
			7:00am Mortgage Apps, 9/26 8:15am ADP Emp Indx, Sep 10:00am Construction, Aug 10:00am HelpWantd OnLine, Sep 10:00am ISM Mfg., Sep 5:00pm Auto Sales, Sep	7:30am Challenger Layoffs, Sep 8:30am UI Claims, 9/27 9:45am Cons Cmft Indx, 9/28 10:00am Factory Orders, Aug 10:30am Oil Inventories, 9/26	8:30am Employment, Sep 8:30am Int'l Trade, Aug 10:00am ISM Non-Mfg., Sep
Oct 6 - 10	6	7	8	9	10
	10:00am ConfBrd ETI, Sep	10:00am JOLTS, Aug 3:00pm Consumer Credit, Aug	7:00am Mortgage Apps, 10/3	8:30am UI Claims, 10/4 9:45am Cons Cmft Indx, 10/5 10:00am Wholesale Trade, Aug 10:30am Oil Inventories, 10/3 2:00pm Mnthly Chain Sales, Sep	8:00am Blue Chip Forecast, Oct 8:30am Import Prices, Sep 2:00pm Treas. Stmt, Sep TBA
Oct 13 - 17	13	14	15	16	17
	Columbus Day	7:45am NFIB Sml Bus. Conf., Sep	7:00am Mortgage Apps, 10/10 8:30am NY Fed Mfg. Surv., Oct 8:30am PPI, Sep 8:30am Retail Sales, Sep 10:00am Bus. Inventories, Aug 2:00pm Beige Bk, Oct*	8:30am UI Claims, 10/11 9:00am Int'l Cap. Flows, Aug 9:15am Industrial Prod., Sep 9:45am Cons Cmft Indx, 10/12 10:00am NAHB Housing Indx, Oct 10:00am Phil. Fed Survey, Oct 11:00am Oil Inventories, 10/10	8:30am Housing Starts, Sep 10:00am Cons. Sentiment, Oct(p)
Oct 20 - 24	20	21	22	23	24
		10:00am Exist. Home Sales, Sep	7:00am Mortgage Apps, 10/17 8:30am CPI, Sep	8:30am UI Claims, 10/18 9:00am FHFA HPI, Aug 9:45am Cons Cmft Indx, 10/19 10:00am Leading Indicators, Sep 10:30am Oil Inventories, 10/17	10:00am New Home Sales, Sep
Oct 27 - 31	27	28	29	30	31
	10:00am NAR PHSales Indx, Sep	8:30am Adv. Durables Ord., Sep 9:00am CS House Prices, Aug 10:00am Cons. Confidence, Oct	7:00am Mortgage Apps, 10/24 2:00pm FOMC Meeting	8:30am GDP, 2014Q3 (A est) 8:30am UI Claims, 10/25 9:45am Cons Cmft Indx, 10/26 10:30am Oil Inventories, 10/24	8:30am ECI, Sep 2014Q3 8:30am Personal Income, Sep 9:45am ISM-Chicago Indx, Oct 10:00am Cons. Sentiment, Oct(f)

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November 2014

November 2014

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December 2014

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28	29	30	31			

	Monday	Tuesday	Wednesday	Thursday	Friday
Nov 3 - 7	Nov 3 10:00am Construction, Sep 10:00am ISM Mfg., Oct 2:00pm Fed SLOOS, Q4* 5:00pm Auto Sales, Oct	4 8:30am Int'l Trade, Sep 10:00am Factory Orders, Sep	5 7:00am Mortgage Apps, 10/31 8:15am ADP Emp Indx, Oct 10:00am HelpWantd OnLine, Oct 10:00am ISM Non-Mfg., Oct	6 7:30am Challenger Layoffs, Oct 8:30am Productivity, 14Q3(p) 8:30am UI Claims, 11/1 9:45am Cons Cmft Indx, 11/2 10:30am Oil Inventories, 10/31 2:00pm Mnthly Chain Sales, Oct	7 8:30am Employment, Oct 3:00pm Consumer Credit, Sep
Nov 10 - 14	10 8:00am Blue Chip Forecast, Nov 10:00am ConfBrd ETI, Oct	11 Veterans Day	12 7:00am Mortgage Apps, 11/7 7:45am NFIB Sml Bus. Conf., Oct 10:00am Wholesale Trade, Sep	13 8:30am UI Claims, 11/8 9:45am Cons Cmft Indx, 11/9 10:00am JOLTS, Sep 11:00am Oil Inventories, 11/7 2:00pm Treas. Statement, Oct	14 8:30am Import Prices, Oct 8:30am Retail Sales, Oct 10:00am Bus. Inventories, Sep 10:00am Cons. Sentiment, Nov(p)
Nov 17 - 21	17 8:30am NY Fed Mfg. Surv., Nov 9:15am Industrial Prod., Oct	18 8:30am PPI, Oct 9:00am Int'l Cap. Flows, Sep 10:00am NAHB Housing Indx, Nov	19 7:00am Mortgage Apps, 11/14 8:30am Housing Starts, Oct 10:00am Bus. Emp Dynam 14Q1	20 8:30am CPI, Oct 8:30am UI Claims, 11/15 9:45am Cons Cmft Indx, 11/16 10:00am Exist. Home Sales, Oct 10:00am Leading Indicators, Oct 10:00am Phil. Fed Survey, Nov 10:30am Oil Inventories, 11/14	21
Nov 24 - 28	24	25 8:30am Corp Prof, 2014Q3(p) 8:30am GDP, 2014Q3 (2 est) 9:00am CS House Prices, Sep 9:00am FHFA HPI, Sep & Q3 10:00am Cons. Confidence, Nov	26 7:00am Mortgage Apps, 11/21 8:30am Adv. Durables Ord., Oct 8:30am Personal Income, Oct 8:30am UI Claims, 11/22 9:45am ISM-Chicago Indx, Nov 10:00am Cons. Sentiment, Nov(f) 10:00am NAR PHSales Indx, Oct 10:00am New Home Sales, Oct 10:30am Oil Inventories, 11/21	27 Thanksgiving Day 9:45am Cons Cmft Indx, 11/23	28

Office of Macroeconomic Analysis

Note: Release dates or times may change. *Approximate release date.

12/23/2013 4:27 PM

December 2014

December 2014

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

January 2015

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

	Monday	Tuesday	Wednesday	Thursday	Friday
Dec 1 - 5	Dec 1 10:00am ISM Mfg., Nov	2 10:00am Construction, Oct 5:00pm Auto Sales, Nov	3 7:00am Mortgage Apps, 11/28 8:15am ADP Emp Indx, Nov 8:30am Productivity, 14Q3(r) 10:00am HelpWantd OnLine, Nov 10:00am ISM Non-Mfg., Nov 2:00pm Beige Bk, Dec*	4 7:30am Challenger Layoffs, Nov 8:30am UI Claims, 11/29 9:45am Cons Cmft Indx, 11/30 10:30am Oil Inventories, 11/28 2:00pm Mnthly Chain Sales, Nov	5 8:30am Employment, Nov 8:30am Int'l Trade, Oct 10:00am Factory Orders, Oct 3:00pm Consumer Credit, Oct
Dec 8 - 12	8 10:00am ConfBrd ETI, Nov 12:00pm Fed Fin'l Accts, Q3*	9 7:45am NFIB Sml Bus. Conf., Nov 8:00am Manpwr Outlk, 2015Q1 10:00am JOLTS, Oct 10:00am Wholesale Trade, Oct	10 7:00am Mortgage Apps, 12/5 8:00am Blue Chip Forecast, Dec 2:00pm Treas. Statement, Nov	11 8:30am Import Prices, Nov 8:30am Retail Sales, Nov 8:30am UI Claims, 12/6 9:45am Cons Cmft Indx, 12/7 10:00am Bus. Inventories, Oct 10:30am Oil Inventories, 12/5	12 8:30am PPI, Nov 10:00am Cons. Sentiment, Dec(p)
Dec 15 - 19	15 8:30am NY Fed Mfg. Surv., Dec 9:00am Int'l Cap. Flows, Oct 9:15am Industrial Prod., Nov 10:00am NAHB Housing Indx, Dec	16 8:30am Housing Starts, Nov	17 7:00am Mortgage Apps, 12/12 8:30am CPI, Nov 8:30am Current Acct, 2014Q3 2:00pm FOMC Mtg&Projection	18 8:30am UI Claims, 12/13 9:45am Cons Cmft Indx, 12/14 10:00am Leading Indicators, Nov 10:00am Phil. Fed Survey, Dec 10:30am Oil Inventories, 12/12	19
Dec 22 - 26	22 10:00am Exist. Home Sales, Nov	23 8:30am Adv. Durables Ord., Nov 8:30am Corp Prof, 2014Q3(r) 8:30am GDP, 2014Q3 (3 est) 8:30am Personal Income, Nov 9:00am FHFA HPI, Oct 10:00am Cons. Sentiment, Dec(f) 10:00am New Home Sales, Nov	24 7:00am Mortgage Apps, 12/19 8:30am UI Claims, 12/20 10:30am Oil Inventories, 12/19	25 Christmas Day 9:45am Cons Cmft Indx, 12/21	26
Dec 29 - Jan 2	29	30 9:00am CS House Prices, Oct 10:00am Cons. Confidence, Dec	31 7:00am Mortgage Apps, 12/26 9:45am ISM-Chicago Indx, Dec 10:00am NAR PHSales Indx, Nov	Jan 1, 15	2

Office of Macroeconomic Analysis Note: Release dates or times may change. *Approximate release date. 12/23/2013 4:27 PM

APPENDIX C: Extremes of price volatility

DATE	PRICEVOLAT	TIME
1/5/2012	0.171875	10:00
1/5/2012	0.171875	12:00
1/6/2012	0.218750	10:31
1/12/2012	0.187500	15:02
1/25/2012	0.265625	12:29
1/25/2012	0.171875	12:31
1/25/2012	0.156250	12:32
1/27/2012	0.171875	10:31
1/30/2012	0.390625	12:08
2/3/2012	0.781250	10:31
2/3/2012	0.171875	10:32
2/14/2012	0.156250	10:31
2/16/2012	0.171875	15:02
2/23/2012	0.187500	15:02
2/29/2012	0.250000	10:06
2/29/2012	0.234375	10:07
3/9/2012	0.312500	10:31
3/13/2012	0.234375	14:16
3/14/2012	0.156250	13:02
3/14/2012	0.187500	13:12
4/3/2012	0.390625	16:01
4/3/2012	0.156250	16:06
4/5/2012	0.250000	10:24
4/6/2012	1.000000	10:31
4/6/2012	0.250000	10:32
4/6/2012	0.156250	10:34
4/6/2012	0.156250	10:36
4/25/2012	0.234375	14:33
5/1/2012	0.187500	12:01
5/4/2012	0.328125	10:30
5/4/2012	0.281250	10:31
5/4/2012	0.156250	10:32
5/10/2012	0.156250	15:02
5/30/2012	0.171875	9:01
6/1/2012	0.468750	10:31
6/5/2012	0.156250	10:40
6/6/2012	0.156250	12:27
6/8/2012	0.484375	20:01
6/15/2012	0.218750	10:45
6/20/2012	0.343750	12:33
6/20/2012	0.250000	12:34
6/20/2012	0.203125	12:41
6/20/2012	0.171875	15:10
6/28/2012	0.156250	15:02
7/2/2012	0.156250	10:01
7/6/2012	0.359375	10:31
7/11/2012	0.218750	15:02
7/27/2012	0.156250	15:26
7/27/2012	0.156250	15:27
7/27/2012	0.281250	15:38
8/1/2012	0.218750	16:14
8/2/2012	0.187500	10:34
8/2/2012	0.156250	11:01
8/3/2012	0.281250	10:31

8/8/2012	0.203125	15:02
8/14/2012	0.171875	10:31
8/15/2012	0.156250	10:31
8/22/2012	0.171875	16:01
9/7/2012	0.500000	10:31
9/12/2012	0.187500	9:06
9/13/2012	0.406250	12:32
9/13/2012	0.390625	2:33
9/13/2012	0.281250	12:34
9/13/2012	0.156250	12:36
9/13/2012	0.156250	12:41
9/13/2012	0.156250	12:42
9/13/2012	0.203125	12:44
9/13/2012	0.218750	12:46
9/13/2012	0.156250	16:01
9/20/2012	0.156250	15:02
10/5/2012	0.234375	10:30
10/5/2012	0.265625	10:31
11/2/2012	0.406250	0:31
11/2/2012	0.156250	10:34
11/8/2012	0.250000	15:02
12/7/2012	0.328125	10:31
12/12/2012	0.187500	12:31
12/12/2012	0.234375	12:32
12/13/2012	0.156250	15:02
1/3/2013	0.156250	16:08
1/4/2013	0.281250	10:31
1/17/2013	0.156250	10:31
1/30/2013	0.218750	10:31
2/1/2013	0.468750	10:03
2/1/2013	0.187500	10:32
2/1/2013	0.171875	20:02
2/20/2013	0.156250	16:01
2/25/2013	0.250000	10:29
3/8/2013	0.578125	10:31
3/13/2013	0.187500	10:31
4/1/2013	0.218750	12:01
4/5/2013	0.421875	10:31
4/23/2013	0.203125	15:09
4/23/2013	0.281250	15:10
4/23/2013	0.281250	15:11
4/23/2013	0.171875	15:12
5/3/2013	0.515625	10:31
5/16/2013	0.281250	10:31
5/16/2013	0.156250	12:01
5/22/2013	0.234375	12:01
5/22/2013	0.187500	12:31
5/22/2013	0.218750	12:34
5/22/2013	0.250000	12:38
5/22/2013	0.312500	12:39
5/22/2013	0.156250	12:43
5/22/2013	0.328125	16:01
5/23/2013	0.187500	10:31
5/24/2013	0.156250	10:31
5/30/2013	0.203125	10:31
5/30/2013	0.156250	5:02
5/31/2013	0.203125	11:43
5/31/2013	0.187500	11:56

5/31/2013	0.187500	17:00
6/3/2013	0.421875	12:01
6/3/2013	0.156250	12:02
6/5/2013	0.343750	10:16
6/5/2013	0.156250	12:01
6/6/2013	0.187500	12:27
6/6/2013	0.187500	12:28
6/7/2013	0.203125	10:18
6/7/2013	0.609375	10:30
6/7/2013	0.546875	10:31
6/7/2013	0.171875	10:32
6/7/2013	0.171875	10:33
6/7/2013	0.421875	10:34
6/7/2013	0.156250	10:35
6/7/2013	0.171875	10:36
6/7/2013	0.203125	10:37
6/7/2013	0.156250	10:52
6/13/2013	0.265625	10:31
6/13/2013	0.250000	15:02
6/13/2013	0.171875	19:41
6/19/2013	0.406250	16:01
6/19/2013	0.187500	6:02
6/19/2013	0.156250	16:03
6/19/2013	0.234375	16:05
6/19/2013	0.171875	16:07
6/19/2013	0.171875	16:09
6/19/2013	0.156250	16:34
6/19/2013	0.171875	16:35
6/19/2013	0.203125	16:39
6/19/2013	0.156250	16:53
6/19/2013	0.156250	16:54
6/19/2013	0.156250	17:46
6/20/2013	0.203125	9:36
6/20/2013	0.328125	10:01
6/21/2013	0.156250	11:38
6/24/2013	0.156250	9:30
6/25/2013	0.203125	10:31
6/25/2013	0.234375	12:01
6/26/2013	0.281250	10:31
6/26/2013	0.171875	17:01
6/27/2013	0.218750	12:01
6/27/2013	0.171875	15:02
7/1/2013	0.187500	12:01
7/3/2013	0.234375	10:16
7/5/2013	0.859375	10:31
7/5/2013	0.265625	10:32
7/5/2013	0.203125	10:33
7/5/2013	0.187500	10:34
7/5/2013	0.171875	10:37
7/10/2013	0.265625	16:01
7/10/2013	0.281250	16:02
7/10/2013	0.156250	16:48
7/10/2013	0.156250	18:48
7/10/2013	0.171875	20:02
7/11/2013	0.187500	10:31
7/11/2013	0.187500	15:02
7/15/2013	0.343750	10:31
7/16/2013	0.203125	10:31

7/17/2013	0.343750	10:31
7/17/2013	0.203125	10:32
7/17/2013	0.203125	10:35
7/17/2013	0.156250	11:07
7/18/2013	0.203125	12:01
7/31/2013	0.250000	10:16
7/31/2013	0.375000	10:31
7/31/2013	0.265625	16:01
7/31/2013	0.187500	16:02
8/1/2013	0.296875	12:01
8/2/2013	0.640625	10:30
8/2/2013	0.578125	10:31
8/2/2013	0.203125	10:32
8/13/2013	0.171875	10:33
8/15/2013	0.234375	10:31
8/15/2013	0.218750	10:32
8/15/2013	0.156250	10:34
8/21/2013	0.281250	16:01
8/21/2013	0.328125	16:02
8/21/2013	0.203125	16:05
8/23/2013	0.171875	12:01
8/26/2013	0.250000	10:31
8/29/2013	0.171875	10:31
9/3/2013	0.312500	12:01
9/5/2013	0.312500	10:16
9/5/2013	0.171875	10:31
9/5/2013	0.250000	12:01
9/6/2013	0.328125	10:30
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9/6/2013	0.281250	10:32
9/6/2013	0.171875	10:34
9/11/2013	0.187500	15:02
9/12/2013	0.218750	10:31
9/13/2013	0.187500	10:31
9/13/2013	0.171875	11:56
9/13/2013	0.406250	20:01
9/18/2013	1.062500	16:01
9/18/2013	0.406250	16:02
9/18/2013	0.156250	16:03
9/18/2013	0.156250	6:04
9/18/2013	0.234375	16:06
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9/18/2013	0.171875	17:04
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10/10/2013	0.171875	2:00
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10/30/2013	0.281250	16:02
11/1/2013	0.171875	14:01
11/7/2013	0.171875	9:36
11/7/2013	0.218750	9:46
11/7/2013	0.171875	9:47
11/7/2013	0.218750	10:31

11/8/2013	0.984375	10:30
11/8/2013	1.531250	10:31
11/8/2013	0.156250	10:32
11/20/2013	0.156250	16:01
12/2/2013	0.203125	12:01
12/4/2013	0.265625	10:16
12/5/2013	0.203125	10:31
12/6/2013	0.625000	10:30
12/6/2013	0.671875	10:31
12/6/2013	0.234375	10:32
12/6/2013	0.156250	10:39
12/12/2013	0.203125	10:31
12/18/2013	0.171875	13:32
12/18/2013	0.328125	16:00
12/18/2013	0.718750	16:01
12/18/2013	0.234375	16:02
12/18/2013	0.171875	16:05
12/18/2013	0.218750	16:06
12/18/2013	0.156250	16:08
12/18/2013	0.156250	16:24
12/18/2013	0.156250	16:34
12/19/2013	0.171875	15:02
12/20/2013	0.156250	10:31
1/8/2014	0.187500	10:16
1/10/2014	0.875000	10:31
1/10/2014	0.265625	10:32
1/10/2014	0.187500	10:33
1/14/2014	0.156250	10:31
1/16/2014	0.187500	10:31
1/28/2014	0.312500	10:31
1/29/2014	0.234375	16:01
1/29/2014	0.203125	16:02
1/29/2014	0.171875	16:10
2/3/2014	0.296875	12:01
2/5/2014	0.203125	10:16
2/5/2014	0.187500	12:01
2/7/2014	0.343750	10:30
2/7/2014	1.000000	10:31
2/11/2014	0.171875	10:31
2/11/2014	0.156250	10:32
2/19/2014	0.171875	16:01
2/20/2014	0.187500	12:01
2/28/2014	0.203125	20:01
3/5/2014	0.171875	10:16
3/7/2014	0.687500	10:31
3/13/2014	0.171875	10:31
3/14/2014	0.156250	13:43
3/19/2014	0.453125	14:01
3/19/2014	0.203125	14:03
3/31/2014	0.156250	11:52
4/2/2014	0.156250	10:16
4/4/2014	0.765625	10:31
4/9/2014	0.265625	16:01
4/9/2014	0.156250	6:05
4/11/2014	0.156250	20:35
4/14/2014	0.203125	10:31
4/30/2014	0.234375	10:31
4/30/2014	0.250000	16:01

4/30/2014	0.156250	16:02
5/2/2014	0.812500	10:31
5/2/2014	0.156250	12:45
5/2/2014	0.171875	12:47
5/2/2014	0.156250	12:48
5/8/2014	0.171875	15:02
5/13/2014	0.218750	10:31
6/2/2014	0.187500	12:01
6/4/2014	0.187500	10:16
6/5/2014	0.156250	10:54
6/6/2014	0.296875	10:31
6/6/2014	0.156250	10:33
6/6/2014	0.187500	10:35
6/12/2014	0.156250	10:31
6/17/2014	0.281250	10:31
6/18/2014	0.515625	16:01
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6/18/2014	0.171875	16:06
6/25/2014	0.218750	10:31
6/26/2014	0.171875	10:31
7/2/2014	0.250000	10:16
7/3/2014	0.640625	10:31
7/15/2014	0.156250	10:31
7/15/2014	0.171875	12:01
7/22/2014	0.171875	10:31
7/30/2014	0.453125	10:31
7/30/2014	0.250000	16:01
7/30/2014	0.187500	16:02
8/1/2014	0.609375	10:31
8/14/2014	0.156250	15:02
8/15/2014	0.203125	12:46
8/15/2014	0.203125	12:56
8/19/2014	0.156250	10:31
8/20/2014	0.156250	16:02
8/20/2014	0.156250	16:04
8/22/2014	0.281250	12:01
8/22/2014	0.156250	12:02
9/3/2014	0.187500	6:55
9/5/2014	0.796875	10:31
9/17/2014	0.281250	16:00:00
9/17/2014	0.546875	16:01
9/17/2014	0.156250	16:02
9/17/2014	0.171875	16:03
9/17/2014	0.156250	16:16
10/3/2014	0.437500	10:31
10/8/2014	0.187500	16:01
10/10/2014	0.156250	20:02
10/15/2014	0.328125	10:31
10/15/2014	0.156250	10:34
10/15/2014	0.187500	10:37
10/15/2014	0.171875	10:54
10/15/2014	0.156250	10:59
10/15/2014	0.187500	11:17
10/15/2014	0.234375	11:34
10/15/2014	0.265625	11:36
10/15/2014	0.171875	11:37
10/15/2014	0.218750	11:38

10/15/2014	0.296875	11:39
10/15/2014	0.421875	11:40
10/15/2014	0.203125	11:41
10/15/2014	0.453125	11:42
10/15/2014	0.281250	11:44
10/15/2014	0.218750	11:45
10/15/2014	0.328125	11:47
10/15/2014	0.218750	11:50
10/15/2014	0.171875	11:53
10/15/2014	0.296875	11:57
10/15/2014	0.203125	11:58
10/15/2014	0.203125	12:22
10/15/2014	0.187500	12:24
10/15/2014	0.156250	12:45
10/15/2014	0.156250	14:08
10/16/2014	0.156250	5:04
10/16/2014	0.156250	6:26
10/16/2014	0.171875	10:31
10/16/2014	0.234375	12:22
10/16/2014	0.156250	12:23
10/16/2014	0.156250	12:35
10/16/2014	0.156250	12:36
10/21/2014	0.171875	2:40
10/22/2014	0.156250	10:31
10/23/2014	0.156250	23:37
10/24/2014	0.187500	10:43
10/28/2014	0.187500	10:31
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10/29/2014	0.156250	14:06
10/29/2014	0.156250	14:10
10/30/2014	0.171875	10:31
10/30/2014	0.156250	10:32
11/3/2014	0.156250	12:01
11/7/2014	0.468750	10:31
11/19/2014	0.234375	16:01
11/20/2014	0.156250	10:31
11/20/2014	0.203125	12:01
12/5/2014	0.671875	10:31
12/5/2014	0.171875	10:32
12/5/2014	0.156250	10:33
12/11/2014	0.187500	10:31
12/11/2014	0.156250	15:02
12/17/2014	0.328125	16:00
12/17/2014	0.390625	16:01
12/17/2014	0.171875	16:02
12/17/2014	0.171875	16:03
12/17/2014	0.234375	16:04
12/17/2014	0.171875	16:05
12/17/2014	0.250000	16:06
12/17/2014	0.234375	16:07
12/17/2014	0.234375	16:09
12/17/2014	0.171875	17:00
12/17/2014	0.171875	17:01

APPEDNIX D: Algorithm for Eviews environment

```
series mean
series variance
series skewness
series kurtosis

for !i=1 to n
sample s{!i}a+p*(!i-1)z+p*!i
smpl s{!i}
mean(!i) = @mean(x)
variance(!i) = @var(x)
skewness(!i) = @skew(x)
kurtosis(!i) = @kurt(x)
next

smpl @all
group descriptives mean variance skewness kurtosis
```

Where:

- x: is the time series under consideration e.g. x=volume
- !i: is a subsample of x
- n: is the number of subsamples which will be produced
- a: is the starting point of observations
- z: is the endpoint of observations
- p: is the step by which x is divided in equal subsamples
- s{!i} : is the subsample produced for which the descriptives are calculated

APPENDIX E: Hausman Tests and Model estimations

RETURNS

Hausman test for model (4), Employment

Correlated Random Effects - Hausman Test
Equation: EMPL01
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	17.295554	2	0.0002

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
RETURNS(-1)	-0.255445	-0.251267	0.000001	0.0000
DUMMY	0.000165	0.000164	0.000000	0.0000

Hausman test for model (5), Employment

Correlated Random Effects - Hausman Test
Equation: EMPL02
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	17.283627	2	0.0002

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
RETURNS(-1)	-0.262660	-0.259798	0.000004	0.1637
RETURNS(-1)*DUMMY	0.010077	0.011902	0.000008	0.5114

Hausman test for model (4), FOMC

Correlated Random Effects - Hausman Test
Equation: FOMC02
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	41.151080	2	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
RETURNS(-1)	-0.150172	-0.133993	0.000006	0.0000
DUMMY	-0.000031	-0.000032	0.000000	0.0000

Hausman test for model (5), FOMC

Correlated Random Effects - Hausman Test
Equation: FOMC03
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	41.230414	2	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
RETURNS(-1)	-0.228908	-0.212500	0.000014	0.0000
RETURNS(-1)*DUMMY	0.095869	0.095595	0.000010	0.9321

Estimations Model 4- Employment

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000144	0.000208	-0.692444	0.4887
RETURNS(-1)	-0.255445	0.034913	-7.316527	0.0000
DUMMY	0.000165	0.000267	0.617820	0.5367

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.067648	Mean dependent var	-2.11E-05
Adjusted R-squared	0.056875	S.D. dependent var	0.009706
S.E. of regression	0.009426	Akaike info criterion	-6.479026
Sum squared resid	0.284497	Schwarz criterion	-6.407678
Log likelihood	10534.02	Hannan-Quinn criter.	-6.453463
F-statistic	6.279099	Durbin-Watson stat	2.030195
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.05E-05	0.000138	-0.437843	0.6615
RETURNS(-1)	-0.255400	0.034945	-7.308693	0.0000
DUMMY05	0.000421	0.000392	1.073149	0.2833

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.067703	Mean dependent var	-2.11E-05
Adjusted R-squared	0.056930	S.D. dependent var	0.009706
S.E. of regression	0.009426	Akaike info criterion	-6.479084
Sum squared resid	0.284481	Schwarz criterion	-6.407736
Log likelihood	10534.12	Hannan-Quinn criter.	-6.453521
F-statistic	6.284498	Durbin-Watson stat	2.030245
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000114	0.000140	-0.813501	0.4160
RETURNS(-1)	-0.255650	0.034979	-7.308646	0.0000
DUMMY10	0.000668	0.000362	1.842901	0.0654

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.068093	Mean dependent var	-2.11E-05
Adjusted R-squared	0.057325	S.D. dependent var	0.009706
S.E. of regression	0.009424	Akaike info criterion	-6.479503
Sum squared resid	0.284362	Schwarz criterion	-6.408156
Log likelihood	10534.80	Hannan-Quinn criter.	-6.453940
F-statistic	6.323422	Durbin-Watson stat	2.030518
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000108	0.000145	-0.744691	0.4565
RETURNS(-1)	-0.255594	0.034969	-7.309212	0.0000
DUMMY15	0.000427	0.000329	1.298570	0.1942

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.067868	Mean dependent var	-2.11E-05
Adjusted R-squared	0.057097	S.D. dependent var	0.009706
S.E. of regression	0.009425	Akaike info criterion	-6.479262
Sum squared resid	0.284430	Schwarz criterion	-6.407914
Log likelihood	10534.40	Hannan-Quinn criter.	-6.453698
F-statistic	6.300978	Durbin-Watson stat	2.030264
Prob(F-statistic)	0.000000		

Estimations Model 5- Employment

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.26E-05	0.000132	-0.247251	0.8047
RETURNS(-1)	-0.262660	0.039518	-6.646563	0.0000
RETURNS(-1)*DUMMY	0.010077	0.061574	0.163652	0.8700

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.067606	Mean dependent var	-2.11E-05
Adjusted R-squared	0.056832	S.D. dependent var	0.009706
S.E. of regression	0.009426	Akaike info criterion	-6.478980
Sum squared resid	0.284510	Schwarz criterion	-6.407632
Log likelihood	10533.95	Hannan-Quinn criter.	-6.453417
F-statistic	6.274841	Durbin-Watson stat	2.030569
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.20E-05	0.000132	-0.242968	0.8080
RETURNS(-1)	-0.259981	0.036777	-7.069167	0.0000
RETURNS(-1)*DUMMY05	0.085349	0.057147	1.493484	0.1354

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.067948	Mean dependent var	-2.11E-05
Adjusted R-squared	0.057178	S.D. dependent var	0.009706
S.E. of regression	0.009425	Akaike info criterion	-6.479347
Sum squared resid	0.284406	Schwarz criterion	-6.408000
Log likelihood	10534.54	Hannan-Quinn criter.	-6.453784
F-statistic	6.308953	Durbin-Watson stat	2.029943
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.33E-05	0.000132	-0.253064	0.8002
RETURNS(-1)	-0.258169	0.038185	-6.761002	0.0000
RETURNS(-1)*DUMMY10	0.029173	0.065695	0.444064	0.6570

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.067657	Mean dependent var	-2.11E-05
Adjusted R-squared	0.056883	S.D. dependent var	0.009706
S.E. of regression	0.009426	Akaike info criterion	-6.479035
Sum squared resid	0.284495	Schwarz criterion	-6.407687
Log likelihood	10534.04	Hannan-Quinn criter.	-6.453472
F-statistic	6.279942	Durbin-Watson stat	2.030116
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.30E-05	0.000132	-0.250893	0.8019
RETURNS(-1)	-0.257720	0.039945	-6.451802	0.0000
RETURNS(-1)*DUMMY15	0.016988	0.056559	0.300364	0.7639

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.067619	Mean dependent var	-2.11E-05
Adjusted R-squared	0.056845	S.D. dependent var	0.009706
S.E. of regression	0.009426	Akaike info criterion	-6.478994
Sum squared resid	0.284506	Schwarz criterion	-6.407646
Log likelihood	10533.97	Hannan-Quinn criter.	-6.453431
F-statistic	6.276137	Durbin-Watson stat	2.030000
Prob(F-statistic)	0.000000		

Estimations Model 4- FOMC

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000414	0.000386	1.073526	0.2832
RETURNS(-1)	-0.150176	0.049301	-3.046090	0.0023
DUMMY	2.82E-05	0.000604	0.046786	0.9627

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.036768	Mean dependent var	0.000376
Adjusted R-squared	0.025483	S.D. dependent var	0.014086
S.E. of regression	0.013905	Akaike info criterion	-5.701134
Sum squared resid	0.412623	Schwarz criterion	-5.632789
Log likelihood	6183.225	Hannan-Quinn criter.	-5.676137
F-statistic	3.258283	Durbin-Watson stat	2.008385
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000466	0.000328	1.419526	0.1559
RETURNS(-1)	-0.150187	0.049303	-3.046185	0.0023
DUMMY05	-0.000490	0.000526	-0.931409	0.3517

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.036842	Mean dependent var	0.000376
Adjusted R-squared	0.025559	S.D. dependent var	0.014086
S.E. of regression	0.013905	Akaike info criterion	-5.701212
Sum squared resid	0.412591	Schwarz criterion	-5.632867
Log likelihood	6183.308	Hannan-Quinn criter.	-5.676214
F-statistic	3.265140	Durbin-Watson stat	2.008360
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000465	0.000347	1.340744	0.1801
RETURNS(-1)	-0.150237	0.049305	-3.047090	0.0023
DUMMY10	-0.000260	0.000505	-0.514279	0.6071

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.036803	Mean dependent var	0.000376
Adjusted R-squared	0.025519	S.D. dependent var	0.014086

S.E. of regression	0.013905	Akaike info criterion	-5.701171
Sum squared resid	0.412607	Schwarz criterion	-5.632826
Log likelihood	6183.265	Hannan-Quinn criter.	-5.676174
F-statistic	3.261552	Durbin-Watson stat	2.008485
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000306	0.000348	0.879402	0.3793
RETURNS(-1)	-0.150401	0.049130	-3.061275	0.0022
DUMMY15	0.000714	0.000731	0.976461	0.3289

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.037143	Mean dependent var	0.000376
Adjusted R-squared	0.025863	S.D. dependent var	0.014086
S.E. of regression	0.013903	Akaike info criterion	-5.701524
Sum squared resid	0.412462	Schwarz criterion	-5.633179
Log likelihood	6183.646	Hannan-Quinn criter.	-5.676527
F-statistic	3.292805	Durbin-Watson stat	2.008262
Prob(F-statistic)	0.000000		

Estimations Model 5- FOMC

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000439	0.000309	1.420841	0.1555
RETURNS(-1)	-0.235465	0.037731	-6.240546	0.0000
RETURNS(-1)*DUMMY	0.105479	0.071069	1.484161	0.1379

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.038493	Mean dependent var	0.000376
Adjusted R-squared	0.027229	S.D. dependent var	0.014086
S.E. of regression	0.013893	Akaike info criterion	-5.702927

Sum squared resid	0.411884	Schwarz criterion	-5.634582
Log likelihood	6185.161	Hannan-Quinn criter.	-5.677930
F-statistic	3.417275	Durbin-Watson stat	2.014974
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000434	0.000307	1.410024	0.1587
RETURNS(-1)	-0.146888	0.050938	-2.883660	0.0040
RETURNS(-1)*DUMMY05	-0.093288	0.093147	-1.001507	0.3167

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.037063	Mean dependent var	0.000376
Adjusted R-squared	0.025782	S.D. dependent var	0.014086
S.E. of regression	0.013903	Akaike info criterion	-5.701441
Sum squared resid	0.412496	Schwarz criterion	-5.633096
Log likelihood	6183.556	Hannan-Quinn criter.	-5.676444
F-statistic	3.285490	Durbin-Watson stat	2.010218
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000430	0.000307	1.397834	0.1623
RETURNS(-1)	-0.142351	0.052452	-2.713932	0.0067
RETURNS(-1)*DUMMY10	-0.117383	0.076568	-1.533063	0.1254

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.037617	Mean dependent var	0.000376
Adjusted R-squared	0.026342	S.D. dependent var	0.014086
S.E. of regression	0.013899	Akaike info criterion	-5.702016
Sum squared resid	0.412259	Schwarz criterion	-5.633671

Log likelihood	6184.177	Hannan-Quinn criter.	-5.677019
F-statistic	3.336473	Durbin-Watson stat	2.012035
Prob(F-statistic)	0.000000		

Dependent Variable: RETURNS
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000419	0.000305	1.372423	0.1701
RETURNS(-1)	-0.188222	0.049294	-3.818356	0.0001
RETURNS(-1)*DUMMY15	0.218858	0.131376	1.665898	0.0959

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.043708	Mean dependent var	0.000376
Adjusted R-squared	0.032505	S.D. dependent var	0.014086
S.E. of regression	0.013855	Akaike info criterion	-5.708366
Sum squared resid	0.409650	Schwarz criterion	-5.640021
Log likelihood	6191.035	Hannan-Quinn criter.	-5.683369
F-statistic	3.901453	Durbin-Watson stat	2.001751
Prob(F-statistic)	0.000000		

Volume

Hausman test for model (4)-Employment

Correlated Random Effects - Hausman Test
Equation: VOLEMPL04
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	271.734635	2	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
VOLUME(-1)	0.152685	0.249901	0.000035	0.0000
DUMMY	143.625174	127.507174	0.956043	0.0000

Hausman test for model (5)-Employment

Correlated Random Effects - Hausman Test
Equation: VOLEMPL05
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	273.704308	2	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
VOLUME(-1)	0.026459	0.151999	0.000074	0.0000
VOLUME(-1)*DUMMY	0.163425	0.128462	0.000030	0.0000

Hausman test for model (4)-FOMC

Correlated Random Effects - Hausman Test
Equation: VOLFOMC04
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	223.256280	2	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
VOLUME(-1)	0.411822	0.555348	0.000092	0.0000
DUMMY	284.079517	180.903262	76.751076	0.0000

Hausman test for model (5)-FOMC

Correlated Random Effects - Hausman Test
Equation: VOLFOMC05
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	222.708523	2	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
VOLUME(-1)	0.174996	0.321305	0.000111	0.0000
VOLUME(-1)*DUMMY	0.280159	0.272327	0.000026	0.1227

Estimations Model 4- Employment

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	370.3048	18.13874	20.41514	0.0000
VOLUME(-1)	0.152685	0.020763	7.353571	0.0000
DUMMY	143.6252	26.94412	5.330483	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.144916	Mean dependent var	550.8466
Adjusted R-squared	0.135036	S.D. dependent var	755.8075
S.E. of regression	702.9271	Akaike info criterion	15.96004
Sum squared resid	1.58E+09	Schwarz criterion	16.03139
Log likelihood	-25817.27	Hannan-Quinn criter.	15.98561
F-statistic	14.66657	Durbin-Watson stat	2.020537
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	466.0094	20.47723	22.75745	0.0000
VOLUME(-1)	0.162607	0.020534	7.918730	0.0000
DUMMY05	-56.46916	46.33392	-1.218744	0.2230

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.137469	Mean dependent var	550.8466
Adjusted R-squared	0.127502	S.D. dependent var	755.8075
S.E. of regression	705.9815	Akaike info criterion	15.96871
Sum squared resid	1.60E+09	Schwarz criterion	16.04006
Log likelihood	-25831.32	Hannan-Quinn criter.	15.99428
F-statistic	13.79271	Durbin-Watson stat	2.025378
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	468.0344	21.42512	21.84513	0.0000
VOLUME(-1)	0.162430	0.020516	7.917258	0.0000
DUMMY10	-46.58252	31.42358	-1.482407	0.1383

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.137529	Mean dependent var	550.8466
Adjusted R-squared	0.127563	S.D. dependent var	755.8075
S.E. of regression	705.9570	Akaike info criterion	15.96864
Sum squared resid	1.60E+09	Schwarz criterion	16.03999
Log likelihood	-25831.20	Hannan-Quinn criter.	15.99421
F-statistic	13.79970	Durbin-Watson stat	2.025395
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	476.6863	22.14358	21.52706	0.0000
VOLUME(-1)	0.161278	0.020489	7.871456	0.0000
DUMMY15	-77.16187	30.85356	-2.500907	0.0124

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.138643	Mean dependent var	550.8466
Adjusted R-squared	0.128690	S.D. dependent var	755.8075
S.E. of regression	705.5009	Akaike info criterion	15.96735
Sum squared resid	1.59E+09	Schwarz criterion	16.03870
Log likelihood	-25829.11	Hannan-Quinn criter.	15.99292
F-statistic	13.92946	Durbin-Watson stat	2.026459
Prob(F-statistic)	0.000000		

Estimations Model 5-Employment

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	470.1574	19.95512	23.56075	0.0000
VOLUME(-1)	0.026459	0.042156	0.627662	0.5303
VOLUME(-1)*DUMMY	0.163425	0.041420	3.945518	0.0001

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.143407	Mean dependent var	550.8466
Adjusted R-squared	0.133509	S.D. dependent var	755.8075
S.E. of regression	703.5473	Akaike info criterion	15.96181
Sum squared resid	1.58E+09	Schwarz criterion	16.03315
Log likelihood	-25820.13	Hannan-Quinn criter.	15.98737
F-statistic	14.48821	Durbin-Watson stat	2.023359
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	462.8493	19.55539	23.66863	0.0000
VOLUME(-1)	0.170875	0.020702	8.254147	0.0000
VOLUME(-1)*DUMMY05	-0.156779	0.051014	-3.073217	0.0021

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.138970	Mean dependent var	550.8466
Adjusted R-squared	0.129021	S.D. dependent var	755.8075
S.E. of regression	705.3669	Akaike info criterion	15.96697
Sum squared resid	1.59E+09	Schwarz criterion	16.03832
Log likelihood	-25828.50	Hannan-Quinn criter.	15.99254
F-statistic	13.96765	Durbin-Watson stat	2.026365
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	463.2586	19.66919	23.55250	0.0000
VOLUME(-1)	0.170333	0.020839	8.173762	0.0000
VOLUME(-1)*DUMMY10	-0.086825	0.049400	-1.757593	0.0789

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.138074	Mean dependent var	550.8466
Adjusted R-squared	0.128114	S.D. dependent var	755.8075
S.E. of regression	705.7339	Akaike info criterion	15.96801
Sum squared resid	1.59E+09	Schwarz criterion	16.03936
Log likelihood	-25830.18	Hannan-Quinn criter.	15.99358
F-statistic	13.86313	Durbin-Watson stat	2.026372
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 36
Total panel (balanced) observations: 3240
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	463.8337	19.69677	23.54872	0.0000
VOLUME(-1)	0.172267	0.021140	8.149020	0.0000
VOLUME(-1)*DUMMY15	-0.080166	0.047177	-1.699256	0.0894

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.138207	Mean dependent var	550.8466
Adjusted R-squared	0.128248	S.D. dependent var	755.8075
S.E. of regression	705.6795	Akaike info criterion	15.96786
Sum squared resid	1.59E+09	Schwarz criterion	16.03921
Log likelihood	-25829.93	Hannan-Quinn criter.	15.99342
F-statistic	13.87860	Durbin-Watson stat	2.028319
Prob(F-statistic)	0.000000		

Estimations Model 4-FOMC

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	730.4267	198.8755	3.672783	0.0002
VOLUME(-1)	0.411822	0.068695	5.994942	0.0000
DUMMY	284.0795	149.0840	1.905499	0.0568

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.378038	Mean dependent var	1559.898
Adjusted R-squared	0.370752	S.D. dependent var	2235.732
S.E. of regression	1773.498	Akaike info criterion	17.81126
Sum squared resid	6.71E+09	Schwarz criterion	17.87960
Log likelihood	-19210.16	Hannan-Quinn criter.	17.83626
F-statistic	51.88315	Durbin-Watson stat	2.131059
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	922.2567	67.23379	13.71716	0.0000
VOLUME(-1)	0.417951	0.042396	9.858176	0.0000
DUMMY05	-203.5856	73.11321	-2.784525	0.0054

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.374997	Mean dependent var	1559.898
Adjusted R-squared	0.367675	S.D. dependent var	2235.732
S.E. of regression	1777.829	Akaike info criterion	17.81614
Sum squared resid	6.74E+09	Schwarz criterion	17.88448
Log likelihood	-19215.43	Hannan-Quinn criter.	17.84113
F-statistic	51.21533	Durbin-Watson stat	2.136682
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	948.6524	68.65078	13.81852	0.0000
VOLUME(-1)	0.414946	0.042525	9.757680	0.0000
DUMMY10	-288.6989	82.58485	-3.495785	0.0005

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.376258	Mean dependent var	1559.898
Adjusted R-squared	0.368951	S.D. dependent var	2235.732
S.E. of regression	1776.034	Akaike info criterion	17.81412
Sum squared resid	6.73E+09	Schwarz criterion	17.88246
Log likelihood	-19213.25	Hannan-Quinn criter.	17.83911
F-statistic	51.49139	Durbin-Watson stat	2.134356
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	954.1163	70.29859	13.57234	0.0000
VOLUME(-1)	0.415070	0.042706	9.719191	0.0000
DUMMY15	-230.2980	80.96275	-2.844494	0.0045

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.376020	Mean dependent var	1559.898
Adjusted R-squared	0.368711	S.D. dependent var	2235.732
S.E. of regression	1776.372	Akaike info criterion	17.81450
Sum squared resid	6.73E+09	Schwarz criterion	17.88284
Log likelihood	-19213.66	Hannan-Quinn criter.	17.83950
F-statistic	51.43936	Durbin-Watson stat	2.132908
Prob(F-statistic)	0.000000		

Estimations Model 5-FOMC

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	976.1061	63.65508	15.33430	0.0000
VOLUME(-1)	0.174996	0.047019	3.721806	0.0002
VOLUME(-1)*DUMMY	0.280159	0.051654	5.423723	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.390841	Mean dependent var	1559.898
Adjusted R-squared	0.383704	S.D. dependent var	2235.732
S.E. of regression	1755.150	Akaike info criterion	17.79046
Sum squared resid	6.57E+09	Schwarz criterion	17.85880
Log likelihood	-19187.70	Hannan-Quinn criter.	17.81546
F-statistic	54.76756	Durbin-Watson stat	2.120711
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	911.8250	65.87097	13.84259	0.0000
VOLUME(-1)	0.421994	0.043002	9.813358	0.0000
VOLUME(-1)*DUMMY05	-0.118071	0.063672	-1.854352	0.0638

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.375088	Mean dependent var	1559.898
Adjusted R-squared	0.367768	S.D. dependent var	2235.732
S.E. of regression	1777.698	Akaike info criterion	17.81599
Sum squared resid	6.74E+09	Schwarz criterion	17.88434
Log likelihood	-19215.27	Hannan-Quinn criter.	17.84099
F-statistic	51.23534	Durbin-Watson stat	2.136845
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	928.4458	64.97930	14.28833	0.0000
VOLUME(-1)	0.427649	0.043266	9.884264	0.0000
VOLUME(-1)*DUMMY10	-0.260638	0.074831	-3.483007	0.0005

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.378884	Mean dependent var	1559.898
Adjusted R-squared	0.371607	S.D. dependent var	2235.732
S.E. of regression	1772.292	Akaike info criterion	17.80990
Sum squared resid	6.70E+09	Schwarz criterion	17.87824
Log likelihood	-19208.69	Hannan-Quinn criter.	17.83490
F-statistic	52.06999	Durbin-Watson stat	2.132714
Prob(F-statistic)	0.000000		

Dependent Variable: VOLUME
Method: Panel Least Squares
Sample (adjusted): 2 91
Periods included: 90
Cross-sections included: 24
Total panel (balanced) observations: 2160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	907.3695	67.81115	13.38083	0.0000
VOLUME(-1)	0.421862	0.042519	9.921673	0.0000
VOLUME(-1)*DUMMY15	-0.022967	0.132461	-0.173389	0.8624

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.374559	Mean dependent var	1559.898
Adjusted R-squared	0.367232	S.D. dependent var	2235.732
S.E. of regression	1778.451	Akaike info criterion	17.81684
Sum squared resid	6.75E+09	Schwarz criterion	17.88518
Log likelihood	-19216.18	Hannan-Quinn criter.	17.84183
F-statistic	51.11970	Durbin-Watson stat	2.135392
Prob(F-statistic)	0.000000		

Curiculum Vitae - Stefanos Tsemperlidis

Adress: Kantouni 9-11 | 11524, Athens
tel: +30 6974304884
email: steftsemp@hotmail.com

PROFESSIONAL EXPERIENCE

- Technical support for National Strategic Reference Framework (2014-2020) programs for education, employment and reform of the public sector. Ministry of Economy, & Development, Office of the Special Secretariat for the European Social Fund | Athens | current position

- Managing, writing and documenting parliamentary control processes | Report and speech writing. Ministry of Economy, Development & Tourism, Minister's Office | Athens | 02.2015-11.2016

- Auditing and analyzing news | Designing and producing publicity reports. Innews SA, Department of Report & Analysis | Athens | 12.2013-07.2014

- Monitoring, auditing and analyzing news | Editing and reviewing press releases, technical texts and information bulletins | Managing communication with journalists. Ministry of Infrastructure, Transports & Networks, Deputy Minister's Office | Athens | 12.2009-11.2011

- Writing physics tutorials for high school students | Evaluating online educational material. Xydas Multimedia | Thessaloniki | 09.2007-06.2008

- Designing and running of an experimental protocol | Recording, analyzing, and processing biological signals. Lab of Medical Informatics, AUTH & the IASIS Medical Centre | Research Project: "Enabling Multichannel Physiological Sensing for Direct Adaptation of Computer User Interfaces in Affective Interaction Paradigms" | Thessaloniki | 09.2006-08.2007

- Teaching introductory lessons of Excel, PowerPoint, Matlab, and the Internet to undergraduate students. Lab of Informatics, School of Medicine, AUTH | Thessaloniki | first semester, 2006.

- Teaching introductory physics classes across the spectrum | Preparing students for university admission exams. "Kronos" Tuition Centre | Thessaloniki | 09.2004-05.2005

EDUCATION

- MSc in Medical Informatics
  Departments of Electrical Engineering, Medicine & Informatics, Aristotle University of Thessaloniki | 2008
  Dissertation: Analysis of Electroencephalographic Signals (EEG) During the Presentation of Affectation Pictures (IAPS)
  Research and review of emotion theories in relation to brain waves, accompanied with experimental data results.

- Diploma in Physics
  Department of Physics, Aristotle University of Thessaloniki | 2004
  Dissertation: Expanding Maps
  Theoretical research on diffeomorphisms on unitary circle and chaotic maps.

TRAINING & PROFESSIONAL DEVELOPMENT

- Psycho-Pedagogics and Teaching Methodology seminars | 2008
- Succeeded in the National Exams for teaching science in public schools | 2008
- 3rd Summer School «Emerging Technologies in Biomedicine» | University of Patras | 2007

OCCUPATIONAL & TECHNICAL SKILLS

- Data collection, auditing, processing, analysis & visualization
- Analytical thinking | Problem solving
- Qualitative and quantitative research methodologies
- Writing | Teaching
- Translating skills (En-Gr, Gr-En)
- Teamwork

LANGUAGES

- Greek (native)
- English: Fluent (reading, writing, speaking) | Certificate of Proficiency in English, MichiganUniversity | 2011

RESEARCH INTERESTS

- Econometrics | Political economy
- Physics | Science education

PERSONAL INTERESTS

- Literature | Cinematography
- Yoga | Swimming