First draft: June 7 2017
This draft: September 16 2018
Preliminary: Comments welcome

What Moves an Emerging Market?

Abstract

Prior work links major US stock market moves to "no news", consistent with systematic noise trading moving the market. An alternative explanation, arbitrageurs trading on private economy-level information, perhaps plausible in smaller less financially developed market, seems unlikely in the US. More powerful statistical tests require more prominent market-wide news, signals more discernible from background fluctuations. Colombia's institutions, largely collapsed by 2001, were rebuilt from 2001 through 2010. Major market moves mark major news about institutional development and setbacks, implicating economy-level news, more than noise trading or private economy-level information. This suggests that market-level event studies might usefully illuminate the importance of institutional changes in other developing economies.

JEL CODES: G14, G41, N26, O43

KEYWORDS: Market efficiency, noise trading, institutions, economic development.

1.   Introduction

North and Weingast (2000) posit that market indexes might capitalize information about investors' expectations about changes in the extent to which institutions open access to the rule of law, political representation, and economic opportunity. This line of reasoning suggests that investors might move in or out of emerging stock markets as news about institutional access expansions or contractions alters their estimates of that economy's future prosperity. North and Weingast therefore suggest stock market index returns as potentially useful measures of institutional change.

However, large U.S. market movements are not associated with news of any kind. Cutler, Poterba and Summers (1989) identify major U.S. stock market moves, search for news stories that might explain them, and report that most large market-wide returns are not driven by major news. Haugen et al. (1991), Fair (2002), and Cornell (2013) affirm and refine this finding. Mitchell

and Mulherin (1994) find some connections between market activity and news, but conclude that the impact of public information on market returns is "not particularly strong". A few abnormal market wide returns in the US correspond to macro news announcements about unemployment (Boyd et al. 2001), monetary policy (Hardouvelis 1987; Jain 1988), and inflation (Jain 1988; McQueen & Roley 1993); but most large US market moves occur absent any substantial news.

This absence of evidence invites two explanations: If major US market moves do not correspond to news, they might reflect either fits of systematic noise trading or trading by investors with private economy-level information. De Long et al. (1990) model systematic (market-wide) noise trading creating and magnifying market-wide fluctuations, increasing rational arbitrageurs' costs of capital and thereby driving informed traders out of the market. Wurgler (2000) reports evidence consistent with systematic noise trader risk being larger in less financially developed markets. The absence of major news corresponding to major US market moves helps motivate a large and growing literature (surveyed by Baker and Wurgler 2013; Shiller 2014; Hirshleifer 2015; Thaler 2016; and others) linking market fluctuations to noise trading.[1] It also potentially undermines North and Weingast's (2000) suggestion that emerging market returns might reflect investor's expectations about the economic consequences of news about institutional changes.

However, this need not follow. Summers (1986), formalizing Sherlock Holmes' observation that "absence of evidence is not evidence of absence", cautions that statistical insignificance means either the tested hypothesis is false or the test's *statistical power* is low (i.e. noise in the data obscures evidence about the hypothesis, which could nonetheless be true). A test's power is increased by using data where the signal – in this context, changes in access to institutions – stands out more prominently. Morck et al. (2000) observe higher stock market-wide volatility in lower income countries' stock markets, and speculate that this might reflect either more energetic noise trading or rational investors reacting to less stable institutions. In either case, emerging markets may provide a setting in which Cutler et al. (1989) tests are more statistically powerful.

We therefore revisit the Cutler et al. (1989) analysis using data from Colombia. Colombia's institutions exhibit extreme changes during period in which electronic news and stock market data are available. Prior to our observation window, an institutional implosion in the 1990s left the government tenuously holding an archipelago of isolated cities as rival narco-Marxist guerrillas, right-wing paramilitaries and the army fought over

---

1 We use the term noise trading, rather than *investor confidence*, which might also reflect rational investors' trust in institution (Fukuyama 1995; La Porta et al. 1997; Putnam 1993; Guiso et al. 2004).

the country.[2] We observe news records and stock market fluctuations from 2001 to 2010, as Colombian institutions were, amid significant setbacks, reconstructed via a series of major public policy shifts.

To distinguish economy-level from global or Latin American volatility, we regress the Colombian market return on US and Latin American market returns, and define the residual as Colombia's *abnormal market return*. We identify 572 *major market move dates* when the daily abnormal market return exceeded one percent in absolute value and search for major institutions-relevant news on those days. We say a news story is *major news* if it is the first mention of an unambiguously important institutional change with obvious security, political or economic repercussions for Colombia. Designating stories as major news is unavoidably subjective, so we provide a complete list of dates and news summaries. We believe other reasonable assessments would closely correspond to this list. We define news as institutions-relevant if it pertains to security (restoration of the rule of law), political reforms (rebuilding of democratic institutions), or economic reforms (liberalization and openness).

We then search for major institutions-relevant news on each major market move date, without distinguishing those with positive and negative returns. We find news of major institutional access expansions on the vast majority of major market move dates with large positive returns, news of major institutional access contractions on the vast majority of major market move dates with large negative returns, and no news of either sort on an equal number of randomly selected dates without major market moves (a placebo test). Within the set of dates with major market moves, the incidence of institutions-relevant news rises with the absolute value of the market move.

These findings are consistent with stock market index returns in Colombia in this period reflecting markets capitalizing public news about institutional changes. They therefore validate country-level event studies (North and Weingast 2000) as a viable tool for exploring the institutional development of nations. In Colombia, institutional access expansions associated with re-establishing the rule of law correspond to larger market-wide gains in earlier years; whereas reforms that strengthen market institutions correspond to larger market gains in later years. These findings thus second North, Wallace and Weingast's (2009) thesis that the rule of law is a necessary precondition for market institutions to aid development.

2.Institutional Background

By 2001, Colombia was widely regarded as a failed state. Drug lords, guerrillas of the FARC (*Fuerzas Armadas Revolucionarias de Colombia* or

---

2 Unfortunately, data for the period of institutional collapse are not readily available in electronic format.

Revolutionary Armed Forces of Colombia) and ELN (*Ejército de Liberación Nacional* or National Liberation Army), and paramilitaries of the AUC (*Autodefensas Unidas de Colombia or* United Self-Defense Forces of Colombia) ran amok.[3] Their brazen kidnappings, murders and terrorist attacks threatened even the government's tenuous control over isolated cities, effectively connected only by air because the highways were too dangerous for travel. A brief overview of how this collapse occurred and how the country rebuilt its shattered institutions provides historical and conceptual background for the empirical tests below.

2.1 The Death and Resurrection of Colombian Institutions

Conflict between leftist guerrillas, right-wing paramilitaries, and the state began after a divisive 1946 election. The victorious Conservative Party encouraged their peasant supporters to seize the land of left-leaning peasants. In reaction, the Liberal and Communist parties organized self–defence associations, which soon become guerrilla units. *La Violencia*, the period from 1948 to 1958, saw extremely violent confrontations between partisan supporters.

In 1953, General Gustavo Rojas Pinilla seized power, and offered amnesty to guerilla and paramilitaries who disarmed. The leftist guerrillas who declined became the FARC, a doctrinaire Marxist–Leninist revolutionary movement that smoldered on in remote parts of the country beyond the writ of the formal government.

Under pressure from the traditional political parties, General Rojas stepped down and Alberto Lleras Camargo served as president from 1958 to 1962. Lleras implemented a classic import substitution program. At first, falling inflation strengthened industrial and agricultural sectors, and increased investment in education and social welfare programs vindicated this program. The economy grew at 6.5% per year from 1966 through 1974 (Hanson 1987), as non-coffee exports increased rapidly. But by 1974, the low productivity side-effects of longstanding trade protection were becoming evident (Morawetz 1981). The first oil shock, during the Misael Pastrana administration (1970–1974), brought very high inflation – though indexed mortgages shielded housing construction. Nonetheless, high inflation eroded middle class savings and widened wealth inequalities (Londoño, 1995); and import substitution policies favored large established firms and kept potential exports uncompetitive (Hanson 1987). By 1978, cotton textiles cost over 50% more than similar foreign products. The central government's fiscal deficit worsened after a coffee boom from 1974 to 1978 ended. Although much public spending was wasteful (Bird 1984), successive administrations

---

3 What follows is necessarily brief. For a complete history of Colombia, see Calderon and Restrepo (2010)

found spending cuts politically difficult, so chronic deficits and a large inefficient public sector persisted.

In the early 1980s, the FARC, long a low-intensity problem in rural areas, began processing Bolivian and Peruvian coca for the U.S. cocaine market. By the 1990s the FARC ran a complete cocaine production supply chain in Colombia. Drugs proved lucrative, and transformed the FARC's roughly 1,000 ill-equipped terrorists into some 10,000 well-equipped fighters.

Meanwhile the state's fiscal situation grew more precarious. Low productivity eventually forced the end of import substitution. President Cesar Gaviria Trujillo (1990 – 1994) enacted a liberalization program (*apertura económica*) that privatized state–owned firms, cut tariffs, and deregulated the financial system. The first years of liberalization saw real GDP growth of 4% to 5%.

However, government austerity as FARC grew flush with drug money proved dangerous. The Gaviria administration, seeking to counter the rising influence of the FARC, authorized legal paramilitary groups. The next years saw an almost complete collapse of Colombia's institutions as a cocaine-based economy took shape. During the Ernesto Samper administration (1994 – 1998), these private police and security paramilitaries became the AUC, numbering about 31,000 by the late 1990s. The AUC's leaders described their goal as solely defensive: protecting people from the FARC. But soon the AUC was also in the drug trade. Amid mounting chaos, the economy buckled.

During the Andrés Pastrana administration (1998 – 2002), the FARC loomed as a genuine rival to the state. Seeking an armistice, Pastrana allocated the FARC a 42,000 km^2 demilitarized zone (DMZ) in 1998. **Figure 1** shows real per capita GDP dropping slightly in 1998, then falling 4.5% in 1999. Colombia's worst recession since the Great Depression ensued, with unemployment topping 20%, and real interest rates surpassing 25%. Real per capita GDP would not regain its 1997 level until 2004; and the peso dropped steadily through 2002, losing three quarters of its value relative to the US dollar. Liberalizations in the early 1990s were blamed, but the timing gap suggests rational expectations about the catastrophic consequences of Pastrana's appeasement policy towards the FARC.

That policy gave the FARC sovereignty over a large territory, from which it attacked the army elsewhere in the country. By 2001, the FARC commanded some 18,000 fighters. The FARC, the other guerrilla groups, and the paramilitaries became increasingly aggressive through the 1990s. Kidnapping business people and politicians became new profit centers. The kidnapping trade expanded from fewer than 100 in 1978 to over 3,000 per year from 1998 to 2001. Extortion and outright theft from businesses and individuals became their third profit center.

By 2001, Colombia was a failed state in the sense that the government no longer possessed a monopoly on the use of violence, and no longer mattered in much of the country. Political decisions in Bogotá mattered there and in a

few other urban centers, if only in their better neighborhoods. The formal economy crumpled; the most profitable businesses were narcotics, kidnappings, and extortion.

The Álvaro Uribe administration (2002-2010) abruptly terminated the appeasement policy, outlawed the FARC, the other guerrillas and the paramilitaries, and launched full-scale military operations against them all. Popular support for the outlawed groups, now viewed as drug traffickers rather than political fighters, collapsed. As the government reasserted its monopoly on the use of force, security indicators rapidly improved. Kidnappings dropped from over 3,000 in 2000 to fewer than 200 in 2010. By April 2004, the government had a permanent police or military presence in almost the whole of Colombian territory for the first time in decades. We summarize this information in **Figure 2**. The figure also shows a sharp and contemporaneous drop in terrorist related incidents and massacres. Foreign Direct Investment into Colombia seems to pick up at the sharpest point of decline in violence there.

Uribe administration also had to rebuild the economy and restore legitimacy to the political system (Pecaut 2010). This required the restoration of critically damaged infrastructure: from roads and power grids to the rule of law. A sequence of dramatic economic liberalizations brought an economic recovery. Per capita GDP nearly doubled in PPP US dollars over the next decade, rising from $5,850 in 2001 to $9,566. Inflation ended the decade at 2.28%. Colombian government debt was investment grade and *The Economist Intelligence Unit* (EIU) included Colombia in a new cohort of promising emerging market economies. As law and order spread across the country, so did economic activity and democratic politics. People previously under guerilla or paramilitary rule voted in elections and found jobs. By September 2011, the unemployment rate was below ten percent – also for the first time in decades. Uribe's detractors and supporters continue to debate the social welfare implications of his reforms. We leave such normative questions to others, and focus on the narrower question of possible links between the stock market's movements, news associated with his policies, and changes in access to Colombia's institutions.

2.2 Access to Institutions

Our objective is to see if major stock market moves correspond to major news of institutional access expansions and contractions. The New Institutional Economics (North 1990, 1994) provides a framework for organizing these news stories. A baseline institutional structure for Latin American economies is the *limited access order*, in which the state uses its monopoly on the legal use of violence – the police, courts, and armed forces – to protect the property of an *extractive elite* only (North, Wallace and Weingast 2009).

A limited access order can be very stable because it vertically integrates government and big business. Because big businesses cannot function without property rights, only the elite, whose property rights the state actually defends, can own them. Because big business owners control the state, its laws and regulations are designed to maximize the profits of established businesses. This typically entails limiting entry and competition to protect the market power of existing businesses so their owners can *extract* larger *rents* (monopoly and monopsony profits). In the ensuing status quo, the vast majority of the population live in poverty, receive few or no educational or other public services, cannot rely on the police to protect their rights, have little voice in political decisions, and cannot easily found and retain legal businesses. Access to these institutions is limited to the elite and their patronage networks. Despite this, the majority accepts the status quo, which suppresses wanton violence (if only to protect the elite and their patronage networks), over a struggle of all against all. Institutional expansion then entails expanding access to these institutions to ever larger fractions of the population. If access is expanded to the entire population, we have an **open access order**.

An open access order has the state not only suppressing private violence, but using its police powers to protect everyone's private property and political rights impartially. This impersonal application of the state's monopoly on violence opens access to economic activity to all. North et al. (2009, 16) argue that this too can become stable because

"People are more likely to obey rules, even at considerable cost to themselves, if they believe that other people will also obey the rules. This is particularly true with rules about the use of violence. An individual has an incentive to shoot first and talk later when he fears that the others will fail to follow the rules and refrain from using violence. In order for a formal rule – an institution – to constrain violence, particularly violence among individuals with no personal knowledge of one another, some organization must exist within which a set of officials enforce the rules in an impersonal manner. In other words, formal institutions control violence only in the presence of an organization capable of enforcing the rules impersonally". Prior to *La Violencia*, Colombia approximated a typical limited-access state, an exception in Latin America at the time in sustaining two-party political competition. This reflected two vying elite factions – one pro-American and secular, the other pro-Roman Catholic. In the late 1940s, this competition descended into violent conflict that, over the next half century, largely destroyed the institutions of the limited access order.[4] In particular,

1. The state informally, and later formally, ceded its monopoly on the lawful use of violence to guerillas and paramilitaries.
2. Armed vigilantes seized the property of people who thought themselves within the patronage network.

_____

4 See Badel (1999), Pecaut (2010), and others.

3. The formal economy collapsed, destroying much of the wealth of the limited access order's elite.

This institutional breakdown denied the limited access order its traditional claims to even this minimal legitimacy. Institutions no longer suppressed wanton violence, sustained the patronage networks, or even protected the property of the elite. The institutional corrosion was slow, and data are not readily available for much of this period.

In contrast, the decade of institutional reconstruction, from 2002 to 2010, is well documented – in particular, stock prices and news archives are readily available. Moreover, some of this period's reforms are suggestive of efforts to transcend the limited access order towards what North et al. (2009) call an *open-access order*, the institutional framework they recognize in only two dozen or so high-income countries.

We are interested in how changes in assets prices capture Colombia's institutional reconstruction expanding access to these institutions. North and Weingast (2000) argue that expanded institutional access should increase the value of private property, including financial assets. Specifically (p. 415), they explain that

> "the creation of political institutions offering credible commitments to wealth-holders should increase both the value of individual financial assets and the size of capital markets on the whole. Changes in asset prices can be used not only to identify significant political and institutional events, but also to measure the degree of that significance".

We therefore use large swings in the Colombian stock market to identify large changes in asset prices, and then seek to link them to news about major institutional changes.

2.3 Dimensions of Institutional Access

North et al. (2009) posit three sets of institutions as determining the extent to which an open access order exists. First, *security-related institutions* must place the military and police under political control and charge them with protecting the rights of everyone, not just an elite. Second, *political institutions* must prevent the elite from controlling how the state uses violence. In every existing open-access order, this is the job of democratic government. Third, *economic institutions* must open economic opportunities for the entire populace. In all existing open-access orders, some variant of free market economics has this charge. These three sorts of institutions combine to link politicians' self-interest in retaining power to their upholding the rule of law and advancing broad economic and social interests. We therefore reconsider Colombia's history from 2001 to 2010 with special regard for these three categories of institutional development, and discuss each in the following paragraphs.

Security-Related Institutions

The state reclaimed its monopoly on the use of violence in stages, and despite several important reversals.

We define *security-related institutional access expansions* as events that make the state's monopoly on the use of violence more credible. These include successful military operations against guerrillas or paramilitaries, paramilitary demobilizations, the capture or killing of guerilla or paramilitary leaders, and operations that successfully damage the narcotics industry, which financed the guerillas and paramilitaries. We define *security-related institutional access contractions* as events that make the state's monopoly on the use of violence less credible. These include successful terrorist attacks by guerrillas or paramilitary forces, successful operations by such groups against the military, revelations of human rights violations by the state, and revelations of government officials having private dealings with guerillas or paramilitaries.

Security-related events need not be solely domestic. For example, Colombia's diplomatic successes in gaining US or EU aid to combat drug trafficking could count too. Another major event in March 2008 was the Colombian military's incursion into Ecuador to attack a FARC camp. This dealt a blow to the FARC, but also precipitated a major diplomatic crisis that damaged Colombia's ties with Ecuador. We call this event a security-related institutional access contraction because it left Colombia's neighbors less likely to cooperate with future efforts to rein in guerillas and paramilitaries.

Political Institutions

The suppression of wanton violence is a prerequisite for opening access to political institutions. While security-related institutions constrain violence by non-state actors, political institutions shape the state's use of violence. We define *political institutional access expansions* as events that credibly signify harder constrains on the state's use of violence to favor elites or the state using its monopoly on violence to create and defend the whole people impersonally. The latter includes news of the state enforcing laws, regulations, and policies that curtail political corruption. In contrast, *political institutional access contractions* are events that credibly arouse concerns that the state's use of violence is the discretionary disposal of elites. Examples include revelations of unpunished official corruption, evidence of bureaucratic secrecy and subservience to elites, and the like.

Economic Institutions

Chronically limited access to economic institutions may explain Latin America's persistent economic stagnation (Haber, North and Weingast 2008). Uneducated voters can be attracted to populist policies that, in reality, close off access to economic opportunities for people not already wealthy or well-connected (Rajan and Zingales 2003; Edwards 2010). Rapid development

programs such as import substitution, which prescribes high tariffs and subsidies to local business owners to stimulate local manufacturing (Prebisch 1950), tend to favor low-productivity firms dependent on government connections (Edwards 2010). Despite their near universal failures, such programs persist (Edwards 2010) – deepening the vertical integration of state and business characteristic of a limited access order and sidelining capital markets, which, in any case, cannot allocate resources efficiently if corporate control is limited to small elites of limited talent (Morck, Stangeland and Yeung, 2000).

Colombia's government began moving away from such policies in the 1990s, and "began to open its economy to external trade via a series of changes in the law and policy of foreign commerce" (Fandl 2008, p. 173). The move gathered momentum, and by 2007 *El Tiempo* could report nine on-going free trade negotiations for access to 54 national markets.[5] Once in place, such treaties limit low-productivity politically connected domestic firms' scope for lobbying for trade protection or subsidies and expand high-productivity domestic firms' market access. Moreover, as trade becomes more important, foreign firms and capital can provide opportunities for people historically shunned by the local elite. Ministry of Commerce, Industry and Tourism's statistics show exports growing fivefold from 2000 to 2012.

We define *economic institutional access expansions* as events that credibly expand access to economic opportunities. Examples include reforms that expand access to capital, lower costs of capital, increase competition, boost trade, or open access to foreign capital. We define *economic institutional access contractions* as events that credibly constrict access to economic opportunities. Examples include policies that limit new entrants' or unconnected firms' access to capital, raise their costs of capital, limit competition, constrain trade, or block foreign capital.

3.   What Moves the Colombian Stock Market?

The abruptness and importance of this period's security, political, and economic institutional changes make 2001 to 2010 a useful testing ground under the premise that more important news stories are more likely to move the market. Nonetheless, the usual issues in linking stock price movements to news arise here too. First, insiders can learn of news early, and their trades might move the market before the news becomes public. Second, public investors' expectations about future news can move stock prices in advance and even induce seemingly perverse reactions to news – as when a firm's low earnings announcement boosts its share price because investors expected worse. Third, public investors may not believe some news. For example, news of higher tax rates may not lower stock prices if investors

---

5 "Colombia busca tener TLC con 54 naciones", *El Tiempo*, August 23, 2007.

expect ample loopholes. All such concerns are genuine, but also work against successfully linking major stock market moves to major news stories.

3.1 Defining Major Stock Market Moves and Major News Stories

3.1.1 Constructing Market Indexes

Stock *i*'s *return* on trading day *t*, denoted $R_{i,t}$ is the stock's total return from the *t*–1 close to the date *t* close, adjusted for dividends, splits, and stock dividends. Daily total returns and trading volumes for all common stocks issued by firms listed on the Colombian Stock Exchange (CSE) between January 2000 to September 2010 are from Thomson DataStream (TDS). These comprise 95% of total market capitalization. The remaining 5% consists of preferred shares, committed to paying constant dividends.

The list of traded common stocks varies little over time. No Colombian firms with listed common stocks went bankrupt or were taken over in the decade from 2000 to 2010; however, some initial public offerings (IPOs) occurred during this period.

Many CSE stocks trade infrequently, and DataStream assumes a total return of zero until trading recurs. This creates artificial periods of zero returns followed by large positive or negative one day returns when infrequently traded stocks' prices catch up with market moves. Including only stocks with positive volume would create undesirable addition and deletion problems in the construction of the indexes, so we apportion thinly traded stocks' returns across periods of inactivity. To illustrate, the cement company Paz del Rio did not trade between April 28th and May 3rd 1994. Its DataStream total return index is 117.14 for April 27th and subsequently until May 4th when the figure abruptly changes to 114.29 – seemingly a string of zero returns followed by a one day price drop of 2.4%. However, this could be misleading if the stock's shadow price changed during the period of inactivity. To prevent such effects from artificially magnifying market swings, we apportion such returns evenly across inactive dates and the first day of renewed trading. That is, we decrease Paz del Rio's total return index by 0.49% each day from April 28th through May 4th. We then use these recalculated stock-level total return indexes to construct market indexes. Of course, the stock's shadow price might follow any path from 117.14 to 114.29, perhaps even that assumed by DataStream. Our approach most likely induces a conservative bias, erring on the side of understating the magnitudes of market-wide swings. We construct our own index rather than taking that in DataStream as given to mitigate this problem and because some tests below utilize subindexes of freestanding firm stocks and business group member firm stocks. Nonetheless, intermittent and thin trading doubtless add noise to our market returns.

To further mitigate this, we construct a market index of only the most actively traded common stocks. We say a stock is *actively traded* if it trades, on average, at least once every two days. This screen leaves 19 to 27 actively traded stocks, the count rising to 20 in 2003, 25 in 2007 and to 27 in 2009 because of IPOs that remain actively traded.[6] Actively traded stocks comprise roughly 80% of total market capitalization on an average trading day. The *active market return* is the equal-weighted mean of these stocks' daily total returns (i.e. adjusted for dividends and stock splits), and is denoted $R_{a,t}$. This is our primary market index return.

We use an equal-weighted index because a few very large firms' stock price movements drive value-weighted indexes. We nonetheless construct value-weighted analogs to $R_{a,t}$ and our other equal-weighted indexes, and repeat our tests using these as robustness checks.

We also construct alternate market return measures. We extend the active sample to 26 to 34 active or intermittently traded stocks that trade on average at least once every five days. These comprise approximately 83% of total market capitalization. Using these, we construct a daily equal-weighted *extended market returns* time series, denoted $R_{e,t}$ and equal to the equally-weighted average of the returns of all these stocks each day. For completeness, we analogously construct equal-weighted *complete market returns*, denoted $R_{c,t}$ using all 58 to 68 common stocks (including very infrequently traded ones).

A second concern is that moves in the Colombian market might reflect global, rather than local factors. We therefore construct an *active market abnormal return* as

[1] $AR_{a,t} = R_{a,t} - \hat{R}_{a,t}$

where $\hat{R}_{a,t}$ is a predicted value of $R_{a,t}$ each day based on the rolling regression

[2] $R_{a,t} = \alpha_{a,t} + \beta_{a,t} R_{LA,t} + \vartheta_{a,t} R_{US,t} + \varepsilon_{a,t}$

---

6 Brio and Foganza trade less than once every five days after their IPOs on March 2nd and March 20th, 2009, respectively. The other eight IPOs, which all trade at least every other day are ETB (Sep. 26th 2003), BVC (Jun. 28th 2007), Enka (Sep. 24th 2007), Ecopetrol (Nov. 28th 2007), BMC (Dec. 6th 2007), Helm (Dec. 19th 2007), EEB (July 29th 2009) and Biomax (Oct. 28th 2009).

estimating the parameters $\alpha_{a,t}$, $\beta_{a,t}$ and $\vartheta_{a,t}$ over a window from 140 to 21 trading days before date t. The right-hand side variables, $R_{LA,t}$, and $R_{US,t}$ are the returns on the TDS Latin America Index (TDSLAI), and the TDS US Index (TDSUSI), respectively. Both variables are expressed in COP. An identical methodology constructs our *extended market abnormal return* and *complete market abnormal return*, $AR_{e,t}$ and $AR_{c,t}$ from the extended market returns $R_{e,t}$ and complete market returns $R_{c,t}$.

A third concern is that we may not identify event dates precisely. For example, news that appears in the papers on date t might have been carried on television or radio on date t-1. If so, there may be information spillover prior to (or after) the designated event dates. We therefore repeat our tests using cumulative returns, the sum of daily returns starting t_s trading days before the recorded major market move date t and ending t_e trading days after t. Specifically, we define the cumulative return of the active market return as

[3] $$CR_{a,t} = \prod_{\tau=t-t_s}^{t+t_e} \left(1 + R_{a,\tau}\right) - 1$$

and the cumulative active market abnormal return as

[4] $$CAR_{a,t} = \prod_{\tau=t-t_s}^{t+t_e} \left(1 + AR_{a,\tau}\right) - 1$$

Analogs using the *cumulative extended market returns*, denoted $CR_{e,t}$, and *cumulative abnormal extended market returns*, $CAR_{e,t}$ are constructed similarly. The cumulative *complete market return* and *cumulative complete market abnormal return*, denoted $CR_{c,t}$ and $CAR_{c,t}$, are similarly constructed.

Finally, we also construct subindexes composed of affiliated firms, those in business groups controlled by elite business families, and unaffiliated firms, defined as all others. We construct separate cumulative returns and abnormal returns for each subindex and repeat this exercise using the active and extended samples.

The tables focus on the raw and abnormal active and extended market indexes. The complete raw and abnormal market indexes yield identical patterns of results, but are conceptually problematic because of exacerbated thin trading bias problems.

3.1.2 Identifying Major Market Move dates and News Dates

We define a *major market move date* as those on which the abnormal active market swings at least 1% in either direction – that is, dates on which $\left|AR_{a,t}\right|>0.01$. Scanning through the 2,255 trading days from July 3rd 2001 and ending September 30th 2010 identifies 572 major market move dates.

For each major market move date, without information about the sign of the market's movement that day, we note the day's front page headline news in the local papers and scan major international newspaper for news about Colombia. The major Colombian newspapers are published in the early morning, and the stock market was open only from 9:00 to noon throughout our sample window.[7] This allows us, in most cases, to identify with a high degree of confidence which news items might be expected to move the market on which days.

To count as major news, the story must be important, new, and pertinent. The *importance* of a news item is gauged by its *shelf life*. A news story that never merits mention again is likely to be unimportant. A news story that continues to attract follow-up coverage for many weeks or months is more likely to be important. We say a news item is *important news* if it has at least one follow-up story at least one month later. We define *follow-up stories* as those that recapitulate the news, but do not add new information that alters its political or economic importance. We say an article is *new* if it does not qualify as a follow up article – that is, if it conveys information about an entirely new development or new information that alters the political or economic importance of a prior story.

Inferring the *pertinence* of a news story is unavoidably subjective. A sporting win is likely not pertinent news, the successful negotiation of a free trade treaty likely is pertinent news, and many things fall between. To gauge pertinence, we read each story, looking for relevance to three dimensions of institutional change: those associated with the rule of law, the legitimacy of the political system, and the freedom of markets.

A news items is attached to a date only if it is both important and pertinent. This exercise identifies 101 pertinent event-dates of the 572 "major market move dates" where the market moved up or down by more than 1%. We thus have 101 "news days" and 471 "no news days".

_____
7 Afternoon trading began in 2012.

In a third step, each of the three categories of events is partitioned into institutional access expansions and institutional access contractions – again, without reference to the sign of the market's movement that day. Finally, we defined subclasses for the three categories. For example, an event associated with the state's monopoly on the legal use of violence is labeled as a purely domestic event.

Table 1 summarizes this exercise. The appendix provides a complete list of events, along with their classifications and the sign and magnitude of the stock index movement that day.

3.1.3 Measurement Windows

Figure 3 separately plots the mean active market returns, using active stocks only, for all institutional access expansions (black), institutional access contractions (dark grey), and no news (light grey) major market move dates, in event time, from date $t – 20$ to $t + 20$.

The figure shows that unusual returns are concentrated on the day of the major market move. Given the very large *annual* returns on the CSE over the 2001-2010 period, longer run returns around the major move tend to be positive, reflecting the long-term trend. We therefore concentrate our analysis on one-day returns. As robustness checks, we repeat all our tests using a three-day and five-day windows centered on the major move date and find very similar results.

Analogous figures (not shown) repeat the exercise for market returns based on a complete list of stocks, rather than active stocks only; as well as for subcategories of news days reveal similar patterns.

3.1.4 Magnitudes of Market Moves and the Incidence of News

Thus far we have based our analysis on market index returns that exceed 1% in absolute value. This led to movements in the stock market that were corroborated by news articles in many, but not all, cases. For example, on the 572 days when the market moved by more than 1%, we find substantiating news on 101 days – that is, a pick-up rate of 17.6%. Focusing on a narrower subset of market movement whose absolute values exceed two percent boosts the pick-up rate to almost 40%. A still more restrictive criterion of three percent boosts the incidence of news days to 78% of move days. This monotonic relation, summarized in **Figure 4**, supports the view that larger stock market movements are more likely due to economy-level fundamentals news.

4.   Empirical Findings

We contrast the means and variances of market returns across classes of major market movement dates. For example, to compare the mean or the variance of market returns in the class of major market move dates with no news with the mean or the variance of market returns with news of institutional changes, we present the mean or the variance of market returns for each class. Our statistical tests are F-tests to reject equal variances in the two classes. Where potentially useful, these are supplemented by the appropriate t-tests to reject the null hypothesis of equal means.[8]

Further tests compare means and variances of the market's return across finer sub-classes of major market move days. This exercise partitions major market move dates with news of institutional changes into those with news of institutional access expansions and those with institutional access contraction; those with news of changes in security, political or economic institutions; and their intersections. This exercise was done without reference to the sign of the market move on each day.

In **Figure 5**, we plot the variance of abnormal market returns twenty days before and after the major market move day. We find that news days abnormal market returns have a variance more than five times larger than on non-news days. The heightened abnormal market return variance is most starkly evident on the major market move date, and only much less so on the days immediately surrounding the major market move date. Excluding this immediate window, market return volatility is statistically indistinguishable for news and no-news days, indicating that the market volatility is not spread out through time.

4.1 Analysis of Variance

Table 2 and Table 3 present Analysis of Variance (ANOVA) tests partitioning major market move dates into those with and without news of institutional access expansions or contractions. F-test p-levels used to contrast these variances.

Panel A in Table 2 shows significantly higher stock market volatility on major market move dates with news of institutional changes than on major market move dates without such news. This suggests that news of institutional changes corresponds to more extreme market swings, even within this set of dates on which the market moved up or down by more than one percent. This pattern is confirmed across all sub-samples of stocks.

Table 3 partitions the active stocks sample into affiliated and unaffiliated firms and repeat this exercise. Unaffiliated firm stocks are marginally

---

8 The t-tests are roughly equivalent to regressing the market return or abnormal return on dummies for the various classes of major move dates.

significantly (p = 0.11) more volatile than are the stocks of firms in family-controlled business groups on dates with institution-relevant news. Otherwise affiliated and unaffiliated firms stocks variances are statistically indistinguishable. Overall, Tables 2 and Table 3 support linking large moves of the Colombian stock market to news about expected access to institutions expanding or contracting. Thus, unlike in the U.S. stock market, major market moves in Colombia do appear to correspond to news – specifically, to news concordant with expanding or contracting expected access to institutions.

Table 4 contrasts the variances of abnormal market returns after separating major market move days with news of institutional access expansions from those with news of institutional access contractions. As in Tables 2 and 3, F-test p-levels are used to compare these variance estimates.

 Table 5 augments these results by presenting analogous comparisons of mean abnormal market returns, with t-test p-levels. Institutional access expansion news dates have a positive mean abnormal return of 3.00%; those with news of institutional access contraction have large negative mean abnormal active market returns of -3.76%. These are significantly different from both zero and the corresponding mean abnormal active market returns on no-news major market move days. Abnormal market returns on major market move days with negative news are significantly larger in absolute value than those on major market move days with positive news. This is consistent with the market reacting more sharply to bad news than good news, as suggested by prospect theory models (Barberis et al. 2001; Barberis 2013).

Other alternative ways of performing this exercise show the results in **Table 2** to be highly robust. For example, estimating Colombian abnormal market returns by regressing the raw local market returns on the DataStream Emerging markets total return index[9], rather than the TDSLAI and USI, yields qualitatively similar patterns of means to those shown. The tables use returns in Colombian pesos. This is reasonable because inflation was low throughout the sample window. Nonetheless, converting all prices and indexes to US dollars, and replicating all the above also generates a table similar to Table 2. We also redo all our tests using both expanded and completed abnormal market and market returns. In addition, news dates could not be always precisely identifiable from newspaper archives. For example, television news might report an event the day before it appears in newspapers, and rumors might circulate even earlier. Alternatively, the full ramifications of an event might not be clear immediately, and the market might move for different days as these become clear. We therefore redo our

---

9 We repeat these tests using the TDS Brazil Total Return Index and TDSGI. Very similar results ensue.

tests searching for news in larger windows around major market moves and our results remain unchangeable.

4.2 Changes in the security situation and market moves

Panel B in both Table 2 and Table 3 elaborates on the ANOVA analysis in section 4.1 by subdividing new days by category of news – that is, news of changes in security, political or economic institutions. P-values from F-tests are provided in the table. In general, there isn't a significant difference between affiliated and unaffiliated firms on major move days with news about security-related institutions. Table 4 shows higher volatility on major move days with news -related institution access contraction than expansion, with the obvious caveat that the events themselves are not mirror images. There is no significant difference between the volatilities of the indexes of affiliated and non-affiliated firms in this respect.

These results demonstrate that more open access to security institutions matter a great deal for the business environment. A plausible channel is that access expansion in security has a positive impact on economic development

4.3 Changes in political institutions and market returns

Financial development is an outcome of specific laws and regulations which are provided by political institutions (Haber et al. 2008). Panel B in Tables 2 and 3 compare volatilities on major move days with news of change in access to political institutions.

Three main findings emerge from Tables 4 and 5 regarding political institutions. First, major market move days with news of expansions in access to political institutions have mean positive abnormal returns equal to 2.92%. Second, major market move days with news of contractions in access to political institutions have a mean negative abnormal return of –3.59%.

Major market move days with political news also have a significantly larger impact on unaffiliated firms than on affiliated firms. Table 3 panel B shows significantly greater volatility in the returns of the subindex of unaffiliated firms. Table 4 shows significantly ($p = 0.06$) higher returns volatility for unaffiliated firms vis-a-vis affiliated firms on major move days with news of contracting access to political institutions. This confirms that the impact of negative political news is greater for unaffiliated firms (p-value from the F-test comparing the variance of returns for the two groups is 0.06). Table 5 shows the average return on major market move days with news of contracted access to political institutions to be -4.8% for unaffiliated firms and -3.3% for affiliated firms (though the difference in means is not significant). This is consistent with shareholders' valuations of firms controlled by Colombia's elite business families being less dependent than the valuations of independent firms on open access to political institutions.

17

According to North (1990), political rules lead to economic rules, though causality can run both ways. Political rights and hence individual contracts are specified and enforced by political decision-making, but economic interest can also exert influence on the political structure (e.g rent seeking behavior). In a simplified political model, the ruler offers protection and justice or at least the reduction of internal disorder and the protection of property rights in return for taxes (North, 1990).

Some of the events related to news of expansions in access to political institutions in this study are represented by the enactment of new laws which improve firms' disclosure and price formation and making the rules of the game for the economic exchange more transparent. In addition, some events are related to changes to the political system, such as constitutional reforms and regulation on the financing of political campaigns. These events support the establishment of a set of rights and privileges for all citizens, aiming to create a stable structure for political and economic relationships, and facilitate enforcement that protects organizations and exchange relationships. In contrast, news of contracting access to political institutions, such as changes in rules which threaten tax and the stability of the political system, cause the opposite effect, and are less likely to have a symmetric effect on all firms. We conjecture that unaffiliated firms have more to lose from events associated with a weakening of political institutions (for e.g., such events may favor crony capitalism).

4.4 Changes in economic institutions and stock market returns

Panel B of Table 2 contains the CSE returns associated with economic institutional events. Regarding active stocks, events related to an economic institutional news generate the largest impact with a return variance equal to 4.33%. There doesn't appear to be a differential impact for affiliated vs. unaffiliated firms though. Finally, we find that in general, the strengthening of economic institutions appears to have a larger impact than events that weaken economic institutions (F-test p-values range from 0.01 to 0.06).

The mean return associated with positive news about economic reforms is 3.8% and –3.2% for negative news (table 4 panel C). These findings suggest that an economic institutional access expansion (contraction) has a positive (negative) impact on the market's expectations in regards to firms' future profits. As we discussed before, a proper economic model should embody a set of economic institutions providing incentives for individuals and organizations to be engaged in productive activities.

Our results point to the importance of governmental efforts to establish new trade agreements, foster internal competition, and gain capital market openness, in improving the international perception of the Colombian economic environment, should increase economic exchange and foster long-term performance of the economy. Goods market openness through trade

18

agreements enhances commercial possibilities for local and foreign investors, rules fostering internal competition encourage economic exchange and international perception of local economic environments affects the willingness of foreign entrepreneurs to invest in those countries. In addition, financial market openness also has an important role fostering economic performance. Bekaert, Harvey, Lundblad and Siegel (2007) find evidence suggesting that financial market openness seems to be an important determinant of the ability to exploit growth opportunities in a country, and are hence a critical factor in spurring economic growth. In later work, Bekaert, Harvey and Lundblad (2011) dissect growth into two channels, capital stock growth and total factor productivity growth, and find that financial openness positively impacts both of these channels, but has a greater impact on factor productivity than investment. According to them, this explains why the growth effects of liberalization appear to be largely permanent, not temporary. They attribute these permanent liberalization effects to the role financial openness plays in stock market and banking sector development, and to changes in the quality of institutions.

4.5 Returns for group affiliated vs. unaffiliated firms

Most firms in emerging economies are controlled by old moneyed families, and many belong to pyramidal ownership groups (see, for e.g, Morck et al 2005, Morck 2011). It is very likely that such business groups wield significant political power as well. Morck and Yeung (2004) review several papers highlighting that large family business groups are likely to be highly effective political rent-seekers. Among the reasons are that leading politicians in developing countries belong to wealthy family business groups; powerful families could take actions against defecting politicians; corrupt officials perceive family business groups as the best partners because of their wealth; and family business groups and politicians are playing repeated games permanently; among others.

In addition, it has been well documented that the existence of business groups is related with capital market under-development. Particularly, business groups in developing countries seem to emerge in response to certain market failures (Leff 1978; Chang and Choi 1988; Khanna and Palepu 1997; Khanna and Ghemawat, 1998; Khanna and Rivkin 2001; Khanna and Yafeh 2007). Some evidence shows that business groups are scenarios which operate under special conditions such as entrenched controlling shareholders, relevant market power, relationships based on political influences and strong business-government cooperation. Khanna and Rivkin (2001) have defined business groups as "a set of firms which, though legally independent, are bound together by a constellation of formal and informal ties and are accustomed to taking coordinated action" (Khanna and Rivkin 2001: 47). In other words, it is argued that firms form business groups in order to influence the way they are governed and the means by which they raise capital (Khanna and Palepu 2000), and at the same, they can use their

19

power to influence the institutional environment. The former arguments help us to explaining why affiliated and unaffiliated firms pose different questions and stand to benefit differently from institutional changes.

We hypothesize that measures that lead to more open markets – part of our economic institution strengthening events – would disproportionately benefit unaffiliated firms, though of course a growing economic pie makes it likely that all firms benefit from such measures. Conversely, the closing of a market is likely to hurt unaffiliated firms more than it would affiliate group firms – for e.g., Faccio et al (2006) document a superior tendency for group firms to garner state bailout funds when they get in trouble. We are unable to make similarly discriminating predictions for security-related and political institutional events for affiliated vs. unaffiliated firms. Perhaps these events benefit all firms equally, regardless of their group affiliation.

We begin first with all major move days that are associated with access expansions (and contractions), regardless of the type of institution. We begin with F-tests comparing the impact of all news for affiliated and non-affiliated firms (results are presented in panel A of table 3). The value of non-affiliated firms appears to be more sensitive to news relative to affiliated firms (the p-value for the F-test is 0.11). As noted in section 4.3 above, this difference is largely driven by political news, where the impact on unaffiliated firms is significantly larger (p-value from F-test comparing variances is 0.01). Within this category, news heralding the weakening of political institutions has a larger impact on unaffiliated firms

(table 4).

Overall it seems that unaffiliated firms are more sensitive to news relative to affiliated firms. The asymmetry points to the benefits of government-business networks favoring affiliated firms vis-à-vis unaffiliated firms.

4.6 Sequencing of institutional access expansion

Colombian institutions all but collapsed, and then were resurrected. This lets us examine how various forms of institutional development might depend on each other. For example, Acemoglu and Robinson (2006) write

> "Any sudden eruption of violence, any turmoil transforming the political system, any situation heightening the already existing conflicts in society also disrupts the economic structure, the relationship of trust, the cooperation that is the essence of capitalist production" (p288).

Such considerations lead them to argue that well developed security and political institutions must be locked in for economic institutional access expansions to have traction. Acemoglu, Johnson and Robinson (2005) likewise argue that institutions providing basic law and order must be in

20

place before other sorts of institutions – e.g. those supporting broader political rights or market economics – can be effective.[10]

To explore these issues further, we estimate the cumulative value to the Colombian stock market of the country's stock at time t of institutional capital related to institutions of type $h \in$ {security, political, economic} as

[6] $\quad K_{h,t} = \prod_{\tau=0}^{t-s} \left(1 + AR_{h,L,t}\right) - 1$

Thus, $K_{security}$ is the cumulative value to the stock market of all the events classified as either security enhancements or security access contractions from the beginning of our sample period (July 3rd 2001) until **s** time units prior to time **t**. The cumulative values to the stock market of political and economic institutional capital, $K_{political}$ and $K_{economic}$, respectively, are analogously defined.

We then run regressions of the form

[7] $\quad AR_{L,t} = b_0 + \sum_{h}^{\square} b_h K_{h,t} + u_t$

The left-hand side variable is the abnormal return associated with an economic institutional access expansion and the right-hand side variables are the measures of the stock of each sort of capital accumulated prior to time **t**. In addition, we estimate other analogues of this estimation where the left-hand side variable is defined as the abnormal returns on security access expansions events and the abnormal return on each political institutional access expansion.

A first issue is the magnitude of **s**. An institutional access expansion might become more credibly part of the country's institutional capital with the passage of time. That length of time is an empirical issue, so we rerun regression [7] for **s** $\in$ {0, 1, 2, … 12 months} for our sample of economic institutional access expansions and access contractions, as Panel B of Table 4 shows these most clearly antedating security access expansions. If **s** = 0 months, we take the cumulative valuation of each form of institutional capital up to the day prior to the event date in question.

Table 6 summarizes the results of this exercise, and reveals a significantly magnified abnormal return for economic institutional changes that follow a more valuable cumulative net access expansion in security and political institutions. The market's valuation of the strengthening of economic

---

10 Acemoglu et al. (2005) distinguish *de facto* political power, the private use of violence, from *de jure* political power, sway over the state's use of legal violence, and argue that the latter supplanting the former is a precondition to broader institutional development.

institutions rises significantly as security-related as well as political institutional capital accumulates. In contrast, the market's valuation of the strengthening of security or political institutions shows no such effect. Finally, after more economic liberalization reforms accumulate additional economic liberalization reforms are valued significantly less highly by the stock market. Perhaps a stock of economic liberalizations sets in motion expectations of continued liberalization, diminishing the actual market impact of such events.

We conclude that the cumulative value of past net institutional enhancements related to security and political institutions enhances the market's valuation of additional access expansions to economic institutions. Loosely speaking, absent the rule of law, the state of economic institutions matters less; but given stronger institutions supporting the rule of law, economic institutional changes matter more. This supports the arguments of Acemoglu and Robinson (2006) and Acemoglu, Johnson and Robinson (2005) that economic institutions build upon more basic institutions that limit the private use of violence.

5. Conclusions

Our empirical findings are as follows: Major moves in Colombia's stock market, unlike in the US stock market (e.g. Cutler et al. 1989; Haugen et al. 1991; Mitchell and Mulherin 1994; Fair 2002; Cornell 2013), correspond clearly to major news about country-level fundamentals. During our sample period, Colombia's institutions, shattered by a decades-long guerrilla insurgency and a long succession of often counterproductive government countermeasures, were rebuilt virtually from the ground up. This institutional reconstruction, with its advances and setbacks, made Colombian country-level fundamentals perhaps uniquely volatile. We conclude that institutional volatility can raise the signal to noise ratio in tests of this sort, letting the link between news and the stock market stand out particularly well.

We further find that major gains by the Colombian stock market net of global index returns correspond to news of the country's institutions becoming stronger and major losses correspond to news of institutions becoming weaker. We conclude that these findings support the speculation of North and Weingast (2000) that market-wide stock returns might usefully be used to gauge the success, credibility and importance of institutional changes in developing economies. We welcome further research using other economies with rapidly changing institutions.

Changes in the quality of institutions associated with security are especially likely on major market move days, and deteriorations in the quality of these sorts of institutions are especially evident on major market moves downward. Institutional changes associated with security stand out most markedly in early years, and changes in institutions associated with politics and the

economy grow relatively more important after security-related institutions have firmed up. We conclude that, to the extent that listed firm valuations represent the strength of private sector as a whole, these findings support the contentions of North, Wallace and Weingast's (2009) that sound institutions supporting the rule of law are a necessary precondition for political market-related institutional reforms to boost economy-level performance. The narrower conclusion, that this sequencing of institutional reforms matters to the values public shareholders attach to listed firms, follows without that qualification. We conclude that public policy makers seeking to rebuild shattered institutions might wish to prioritize reforms opening access to the rule of law. Without these, reforms to political and economic institutions are less valuable (at least to shareholders).

Some Colombian firms belong to large pyramidal groups controlled by elite politically-connected business families. Others are unaffiliated, and can credibly be considered less able to protect their property rights comprehensively when access to institutions is limited. Consistent with this, we find that unaffiliated firms are more sensitive to news relative to affiliated firms, especially when political institutions worsen. However, both group affiliated and unaffiliated firms share prices rise when institutions strengthen. More open access to institutions creates value for the public shareholders of firms run by elite families as well as for the public shareholders of other firms. These findings complement work (e.g. Morck et al. 2005; Khanna and Yafeh 2007) showing that business group firms are relatively better performers in countries with weaker institutions and relatively worse performers in countries with stronger institutions. These findings are within-country difference-in-difference results that complement prior work showing that the value public shareholders attach to controlling shareholders' political connections (e.g. Fisman 2001; Leuz and Oberholzer-Gee 2006; Amore and Bennedsen 2013) is smaller in countries with stronger institutions (e.g. Faccio 2010; Faccio 2010; Boubakri et al. 2012).

References

Acemoglu, Daron & James Robinson, 2006, *Economic Origins of Dictatorship & Democracy*, Cambridge University Press, New York.

Acemoglu, Daron, Simon Johnson & James Robinson, 2001, The Colonial Origins of Comparative Development: An Empirical Investigation, *American Economic Review* 91(5):1369–1401.

Acemoglu, Daron, Simon Johnson & James Robinson, 2005, The rise of Europe: Atlantic Trade, institutional change & economic growth, *American Economic Review* 95(3):546–579.

Amore, Mario Daniele & Morten Bennedsen. 2013. The value of local political connections in a low-corruption environment. Journal of Financial Economics 110(2)387-402.

Badel, Martha, 1999, Costos de la corrupción en Colombia, Archivos de Macroeconomía, Documento 111, Departamento Nacional de Planeación, Bogota, Colombia.

Baker, Malcolm and Jeffrey Wurgler. 2013. Behavioral Corporate Finance: An Updated Survey." Handbook of the Economics of Finance 2,357-424.

Barberis, Nicholas, Ming Huang & Tano Santos. 2001. Prospect theory & asset prices. *Quarterly Journal of Economics* 116(1)1-53.

Barberis, Nicholas. 2013. Thirty years of prospect theory in economics: A review & assessment. *Journal of Economic Perspectives* 27(1)173-195.

Bekaert, Geert, Campbell Harvey & Christian Lundblad, 2011, Financial Openness & Productivity, *World Development* 39(1):1–19.

Bekaert, Geert, Campbell Harvey, Christian Lundblad & Stephan Siegel, 2007, Global Growth Opportunities & Market Integration, *Journal of Finance* 62(3):1081–1137.

Bird, Richard, 1984, *Intergovernmental finance in Colombia: final report of the mission on intergovernmental finance*, Harvard University Law School, Cambridge, MA.

Black, Fischer, 1986, Noise, *Journal of Finance* 41(3):529–543.

Boubakri, Narjess, Omrane Guedhami, Dev Mishra & Walid Saffar. 2012. Political connections & the cost of equity capital. *Journal of Corporate Finance* 18(3)541-559.

Calderon, Maria-Teresa & Isabela Restrepo (editors), 2010, *Colombia 1910-2010*, Bogotá: Taurus.

Chang, Sea-jin & Unghwan Choi, 1988, Strategy, Structure & Performance of Korean Business Groups: A Transactions Cost Approach, *Journal of Industrial Economics* 37(2):141-58.

Chun, Hyunbae, Jung-Wook Kim & Randall Morck, 2011, Varying heterogeneity among u.S. Firms: Facts & implications, Review of Economics & Statistics 93, 1034.

Chun, Hyunbae, Jung-Wook Kim, Randall Morck & Bernard Yeung, 2008, Creative destruction & firm-specific performance heterogeneity, Journal of Financial Economics 89, 109.

Cutler, David, James Poterba & Lawrence Summers, 1989, What Moves Stock
      Prices? *The Journal of Portfolio Management* 15(3):4–12.

Davis, Lance & Douglass North, 1971, *Institutional change & American
      economic growth*, Cambridge: Cambridge University Press.

De Long, Bradford, Andrei Shleifer, Lawrence Summers & Robert Waldmann,
      1990, Noise trader risk in financial markets, Journal of Political
      Economy 98, 703-738

Denis, David J., and Jin Xu. 2013. Insider trading restrictions and top
      executive compensation." Journal of Accounting and Economics
      56(1)91-112.

Edwards, Sebastian, 2010, *Left Behind: Latin America & the False Promise of
      Populism*, University of Chicago Press.

El Tiempo, 2007, August 23, *Colombia Busca Tener TLC Con 54 Naciones*,
      (http://www.eltiempo.com/archivo/documento/MAM-2628133), Nov. 1,
      2010.

Faccio, Mara, Ronald W. Masulis & John McConnell. 2006. Political connections
      & corporate bailouts. *Journal of Finance* 61(6)2597-2635.

Faccio, Mara. 2010. Differences between politically connected &
      nonconnected firms: A cross-country analysis. *Financial Management*
      39(3)905-928.

Fair, Ray. 2002. Events that Shook the Market. Journal of Business 75(4)713-
      32.

Fama, Eugene & Kenneth French. 2004. New lists: Fundamentals & survival
      rates. Journal of financial Economics 73(2): 229-269.

Fama, Eugene, Lawrence Fisher, Michael Jensen & Richard Roll, 1969, The
      Adjustment of Stock Prices to New Information, *International Economic
      Review* 10(1):1–21.

Fama, Eugene, Lawrence Fisher, Michael Jensen & Richard Roll, 1969, The
      adjustment of stock prices to new information, *International Economic
      Review* 10(1): 1–27.

Fandl, Kevin, 2008, Making Trade Liberalization Work for the Poor: Trade Law
      & the Informal Economy in Colombia, *Texas International Law Journal*
      43(2):161–184.

Fisman, Raymond. 2001. Estimating the value of political connections.
      American Economic Review 91(4)1095-1102.

Fukuyama, Francis, 2011, *The Origins of Political Order: From Prehuman
      Times to the French Revolution*, Farrar Straus & Giroux, New York.

González, Maximiliano, Alexander Guzmán & María–Andrea Trujillo, 2010, The
      role of heirs in family businesses: The case of Carvajal, *Innovar*
      20(36):49–66.

Haber, Stephen, Douglass North & Barry Weingast (editors), 2008, *Political
      Institutions & Financial Development*, Stanford: Stanford University
      Press.

Hanson, James, 1987, Growth & Distribution in Colombia: Some Recent
      Analyses, *Latin American Research Review* 22(1):255–264.

Haugen, Robert A., Eli Talmor, and Walter N. Torous. 1991. The effect of volatility changes on the level of stock prices and subsequent expected returns. Journal of Finance 46,985–1007.

Hirshleifer, David. 2015. Behavioral finance. Annual Review of Financial Economics 7,133-159.

Hobbes, Thomas, 1651, *Leviathan*, Paperback Edition 1998, Cambridge University Press: England.

Jin, Li & Stewart C. Myers, 2006, R^2 around the world: New theory & new tests, Journal of Financial Economics 79 2, 257-92.

Keynes, John Maynard, 1936, *The General Theory of Employment, Interest & Money*, London, Macmillan & Co.

Khanna, Tarun & Jan W. Rivkin, 2001, Estimating the performance effects of business groups in emerging markets, *Strategic Management Journal* 22(1):45–74.

Khanna, Tarun & Krishna Palepu, 1997, Why Focused Strategies May Be Wrong for Emerging Markets, *Harvard Business Review* 75(4):41-51.

Khanna, Tarun & Krishna Palepu, 2000, Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups, *Journal of Finance* 55(2):867–890.

Khanna, Tarun & Pankaj Ghemawat, 1998, The nature of diversified business groups: a research design & two case studies, *Journal of Industrial economics* 46(1):35–61.

Khanna, Tarun & Yishay Yafeh, 2007, Business Groups in Emerging Markets: Paragons or Parasites?, *Journal of Economic Literature* 45(2):331-372.

Leff, Nathaniel, 1978, Industrial Organization & Entrepreneurship in the Developing Countries: The Economic Groups, *Economic Development & Cultural Change* 26:661–675.

Leuz, Christian & Felix Oberholzer-Gee. 2006. Political relationships, global financing & corporate transparency: Evidence from Indonesia. *Journal of Financial Econo*mics 81(2)411-39.

Levine, Ross & Sara Zervos, 1998, Stock Markets, Banks & Economic Growth, *The American Economic Review* 88(3):537–558.

Londoño, Juan, 1995, *Distribución del ingreso y desarrollo económico: Colombia en el siglo XX*, Bogotá: Tercer Mundo Editores, Banco de la República & Fedesarrollo.

Mitchell, Mark & J. Harold Mulherin. 1994. The impact of public information on the stock market. *Journal of Finance* 49(3)923-50.

Morawetz, David, 1981, *Why the emperor's new clothes are not made in Colombia*, Oxford: Oxford University Press for the World Bank, 192p.

Morck, Randall & Bernard Yeung, 2004, Family control & the rent-seeking society, *Entrepreneurship: Theory & Practice* 28(4):391–409.

Morck, Randall, 2011, Finance & Governance in Developing Economies, *Annual Review of Financial Economics*, 3:375–406.

Morck, Randall, Daniel Wolfenzon & Bernard Yeung, 2005, Corporate Governance, Economic Entrenchment & Growth, *Journal of Economic Literature* 43(3):655–720.

North, Douglass & Barry Weingast, 2000, Introduction: Institutional analysis & economic history, *The Journal of Economic History* 60(2): 414–417.

North, Douglass, 1990, *Institutions, institutional change & economic performance*, Cambridge: Cambridge University Press.

North, Douglass, 1991, Institutions, *The journal of economic perspectives* 5(1):97–112.

North, Douglass, 1994, Economic performance through time, *The American economic review* 84(3):359–368.

North, Douglass, 2005, *Understanding the process of economic change*, Princeton, New Jersey; Oxford, England: Princeton University Press.

North, Douglass, John Wallis & Barry Weingast, 2009, *Violence & social orders: A conceptual framework for interpreting recorded human history*, Cambridge: Cambridge University Press.

Pecaut, Daniel, Simbólica Nacional, liberalismo y violencias, in Maria Teresa Calderon & Isabela Restrepo (eds.), *Colombia 1910 – 2010*, Bogotá: Tauros.

Prebisch, Raul, 1950, *The Economic Development of Latin America & its Principal Problems*, Lake Success, New York: United Nations Economic Commission for Latin America.

Rajan Raghuram & Luigi Zingales, 2003, The Great Reversals: The Politics of Financial Development in the 20th Century, *Journal of Financial Economics* 69(1):5–50.

Roll, Richard, 1988, R-Squared, Journal of Finance 43(2):541–566.

Shiller, Robert. 2014. Speculative asset prices. American Economic Review 104(6)1486-1517.

Thaler, Richard H. 2016. Behavioral Economics: Past, Present, and Future. American Economic Review 106(7)1577-1600.

Veldkamp, Laura. 2006a. Information markets & the comovement of asset prices." Review of Economic Studies 73(3)823-45.

Veldkamp, Laura. 2006b. Media frenzies in markets for financial information. American Economic Review 96(3)577-601.

Table 1. Incidence of News about Institutions on Major Market Move Days

The Table classifies the 101 "news days" in three different types of institutional change (security, political or economic access). In addition, each of the three categories of events is partitioned into institutional access expansions and institutional access contractions. It also shows subclasses for the three categories.

Type of Institutional Change	Access Expansion	Access Contraction	Total
Security			
Purely domestic	15	12	
With global interference	10	12	
Subtotal	25	24	49
Political institutions			
Political system	5	12	
Protection to investors	3		
International perception	2		
Government efficiency		3	
Tax stability		2	
Subtotal	10	17	27
Economic institutions			
Trade - Goods market openness	12	8	
Capital market openness	2	1	
Internal competition	2		
Subtotal	16	9	25
Total	**51**	**50**	**101**

Table 2. Analysis of Variances of Market Abnormal Returns

Panel A shows the Analysis of Variance (ANOVA) tests partitioning major market move dates into those with and without news of institutional access expansions or contractions for the active, expanded and complete market indexes. Panel B elaborates on the ANOVA analysis subdividing new days by category of news – that is, news of changes in security, political or economic institutions. P-values from F-tests are provided in the table.

	Obs.	Active Market Index 27 firms		Expanded Market Index 34 firms		Complete Market Index 68 firms	
Activity criterion for inclusion in index		Traded at least every two days		Traded at least every five days		No restriction	
Panel A							
Class of major move days		*Standard Deviations of one-day Abnormal Market Return {p-level for F test rejecting equal variance}*					
Institutions-relevant news	101	0.0404	{0.000}	0.0333	{0.000}	0.0163	{0.000}
No news	471	0.0175		0.0147		0.0073	
Panel B							
Classes of major move days		*Standard Deviations of one-day Abnormal Market Return {p-level for F test rejecting variance equal to that on no-news major move days}*					
Institutional news re.							
Security access	49	0.0385	{0.000}	0.0321	{0.000}	0.0158	{0.000}
Political access	27	0.0385	{0.000}	0.0320	{0.000}	0.0157	{0.000}
Economic access	25	0.0431	{0.000}	0.0348	{0.000}	0.0172	{0.000}

Table 3. Analysis of Variance for Affiliated versus Unaffiliated firms

Panel A shows the Analysis of Variance (ANOVA) tests partitioning major market move dates into those with and without news of institutional access expansions or contractions for the active affiliated and unaffiliated market indexes. Panel B elaborates on the ANOVA analysis subdividing new days by category of news – that is, news of changes in security, political or economic institutions. P-values from F-tests are provided in the table.

	Obs.	Affiliated Firms Index 17 firms		Unaffiliated Firms Index 10 firms		Difference	
Activity criterion		Active stocks: Traded at least every two days					
Panel A							
Class of major move day		*Standard Deviations of one-day Abnormal Market Return {p-level for F test rejecting equal variance}*					
Institutions-relevant news	101	0.0409	{0.000}	0.0462	{0.000}	0.0053	{0.112}
No news	471	0.0187		0.0178		0.0009	
Panel B							
Class of major move day		*Standard Deviations of one-day Abnormal Market Return {p-level for F test rejecting variance equal to that on no-news major move days}*					
Institutional news re.							
Security access	49	0.0400	{0.000}	0.0350	{0.000}	0.0050	{0.178}
Political access	27	0.0373	{0.000}	0.0586	{0.000}	0.0213	{0.012}
Economic access	25	0.0440	{0.000}	0.0443	{0.000}	0.0003	{0.485}

Table 4. Analysis of Variance of Active Stocks Abnormal Market Return: Access and Contractions

The table contrasts the variances of abnormal market returns after separating major market mo of institutional access expansions from those with news of institutional access contractions.

	Obs.	Active Market Index (27 firms)	Affiliated Firms Index (17 firms)	Unaffiliated Firms Index (10 firms)	
Activity criterion			Active stocks: Traded at least every two days		
Class of major move day					
Access expansion	51	0.0215	0.0222	0.0272	

	Obs.			
news				
Access contraction news	50	0.0225 {0.451}	0.0232 {0.378}	0.0378 {0.437}

Class of major move day

	Obs.			
Security access expansion news	25	0.0122	0.0136	0.0153
Security access contraction news	24	0.0251 {0.002}	0.0267 {0.004}	0.0249 {0.045}
Political access expansion news	10	0.0182	0.0205	0.0230
Political access contraction news	17	0.0235 {0.657}	0.0230 {0.823}	0.0573 {0.1667}
Economic access expansion news	16	0.0315	0.0315	0.0382
Economic access contraction news	9	0.0102 {0.055}	0.0107 {0.065}	0.0091 {0.012}

Table 5. Mean Active Stocks Abnormal Market Return: Access Expansions and (
The table contrasts the mean of abnormal market returns after separating major market
news of institutional access expansions from those with news of institutional access con

	Obs.	Active Market Index (27 firms)	Affiliated Firms Index (17 firms)	Unaffiliated Firms Index (10 firms)
Activity criterion			Active stocks: Traded at least every two days	

Class of major move day

	Obs.	Active Market Index (27 firms)	Affiliated Firms Index (17 firms)	Unaffiliated Firms Index (10 firms)
Access expansion news	51	0.0300 [0.000]	0.0308 [0.000]	0.0248 [0.001]
Access contraction news	50	-0.0376 [0.000]	-0.0370 [0.000]	-0.0402 [0.000]

Class of major move day

	Obs.	*News Suggesting Expansion of Access to Institutions re.*		
Security	25	0.0250	0.0266	0.0167
Political	10	0.0292	0.0287	0.0233
Economic	16	0.0383	0.0386	0.0383

News Suggesting Contraction of Access to Institutions re.

Security	24	-0.0408	-0.0410	-0.0396
Political	17	-0.0359	-0.0329	-0.0480
Economic	9	-0.0325	-0.0343	-0.0270

Table 6

The table shows the impact that prior institutional access expansions has on the abnormal returns of current institutional access expansions. Abnormal return associated with institutional access expansions (the dependent variable) is calculated based on the TDS Latin American and United States Indexes return as described in [1]. Security, Political, and Economic Capital is defined as the cumulative abnormal return associated with Security, Political, and Economic institutional access expansions starting from July-3-2001 through T, where T is the closing price three-months prior to the event.

Explained variable: Abnormal Active Market Return on major move day with news of	Expanded access to institutions related to			
	Security	Political	Economic	
Explanatory Variables (Lagged period: 3 months)				
Security Capital	-0.0250	0.0028	0.1734	***
	(0.0225)	(0.0269)	(0.0460)	
Political Capital	-0.0255	-0.0095	0.2294	***
	(0.0313)	(0.0436)	(0.0638)	
Economic Capital	0.0265	-0.0266	-0.1795	***
	(0.0227)	(0.0247)	(0.0403)	

Figure 1

The figure shows the Colombian gross domestic product per capita from 1980 (2,019.85 dollars) to 2010 (3,236.58 dollars). Data are in constant 2000 U.S. dollars. Source: World Bank statistics.

Real per capita GDP
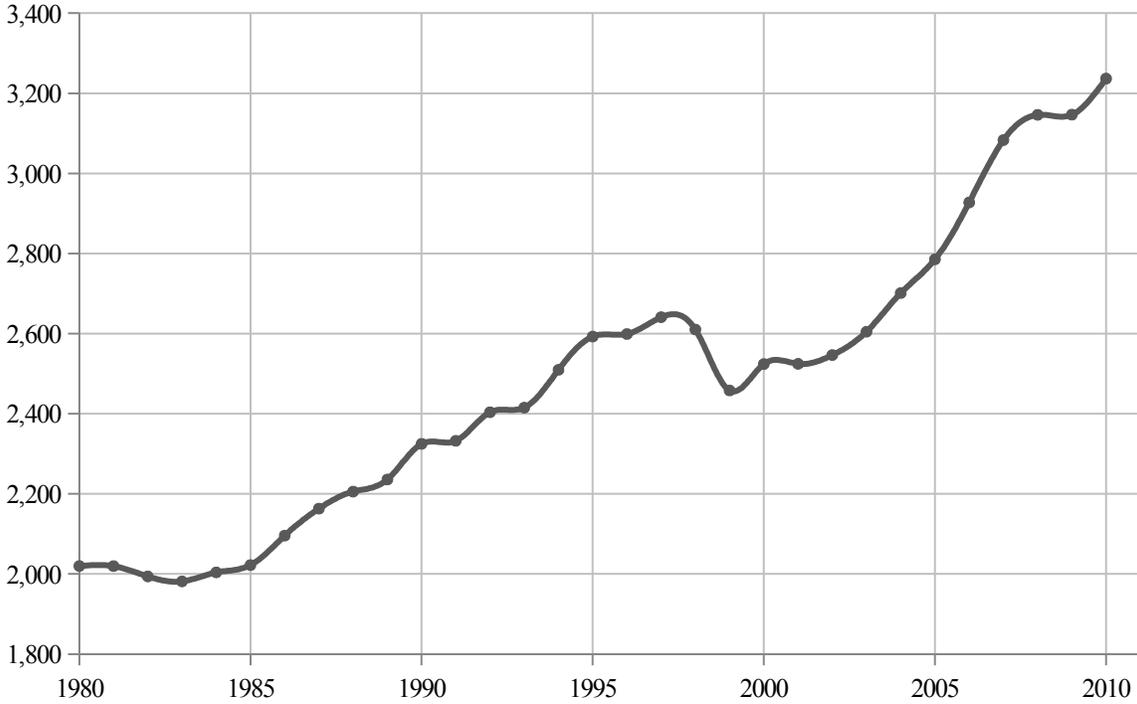
Figure 2

The figure plots FDI and relates this with the number of kidnappings, terrorist attacks, and massacre victims in Colombia for the period 2001-2010. Sources: DANE (National Administrative Department of Statistics), National Defense Ministry of Colombia, Proexport, and País Libre Foundation.

FDI and national security statistics
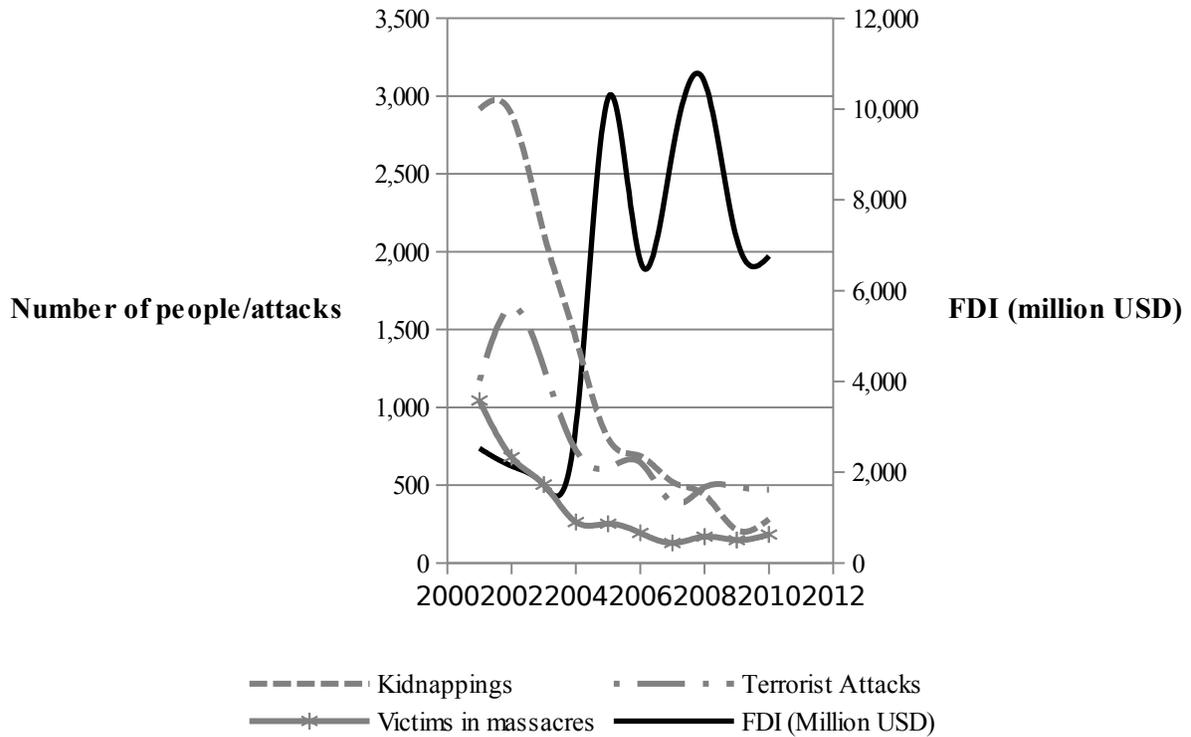
Figure 3

The figure separately plots the mean active market returns, using active stocks only, for all institutional access expansions (black), institutional access contractions (dark grey), and no news (light grey) major market move dates, in event time, from date t – 20 to t + 20.

Mean abnormal returns

Institutional improvements ▬▬ Institutional deteriorations ▬▬ No news ▬▬
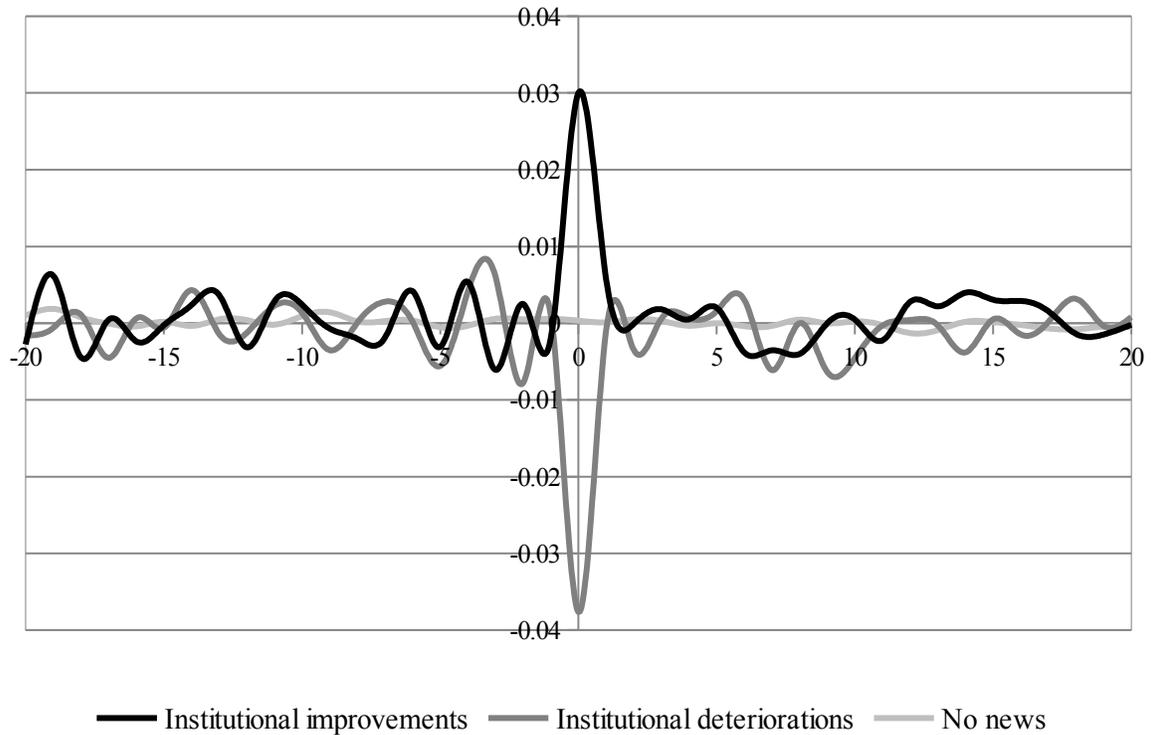
Figure 4

The figure plots the ratio of news days to major market move dates (pick-up rate) for different levels of market variations (from 1% to 5%). For example, on the 572 days when the market moved by more than 1%, there was substantiating news on 101 days, representing a pick up rate of 17.6%.

Pick up rate
Ratio of news days to major market move dates
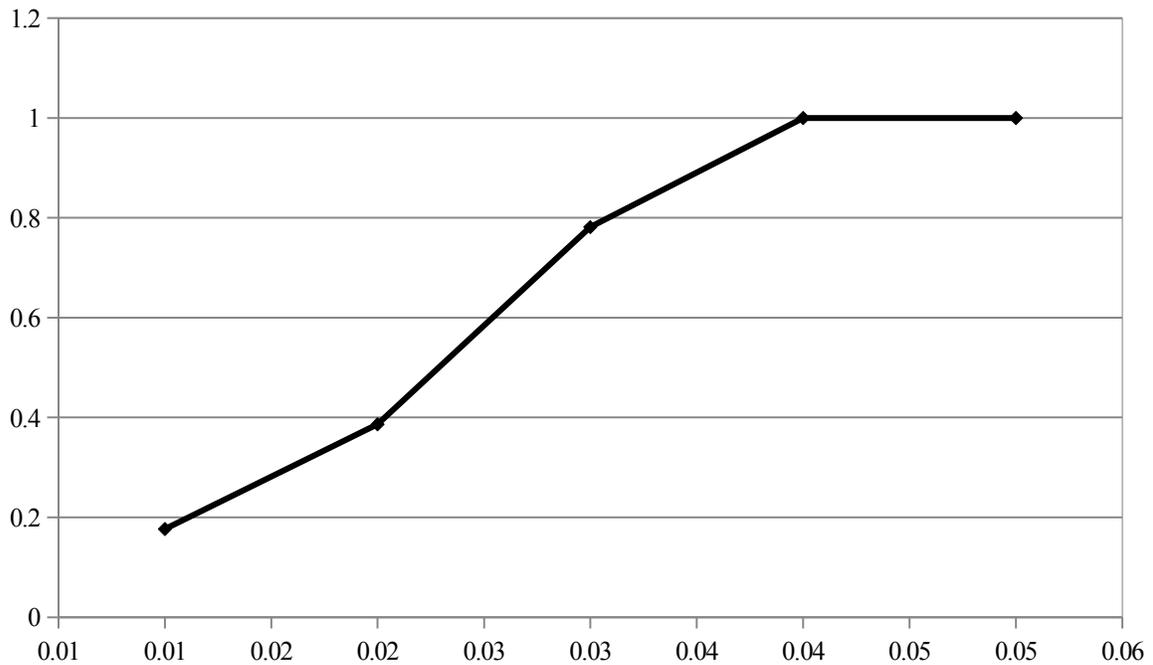
Figure 5

The figure plots the variance of abnormal market returns twenty days before and after the major market move day.

Variances of abnormal returns