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**DISTRESSED WHALES ON THE NILE – EGYPT
CAPITALISTS IN THE WAKE
OF THE 2010 REVOLUTION**

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Working Paper No. 747

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Abstract

The paper studies the nature and extent of business privileges in Egypt by looking at corporate development and stock market valuation of traded firms before and after the revolution. First, we identify politically connected firms and conduct an event study around the revolution of 2010-11 (and around events with rumors about Mubarak's health) to estimate the market valuation of political connections. Second, we look for the advantages provided by these connections by looking at the corporate behavior of connected firms before the revolution. Finally, we compare the financial returns of connected and non connected firms and contrast them with the market valuation of connections, and with the benefits they actually received in the past, to draw some characterization of the political economy of business state relations in Egypt during the past decade.

JEL Classification: P1, P2

Keywords: Political Economy, Capitalists in Egypt, Market Valuation

ملخص

تدرس هذه الورقة طبيعة ومدى الامتيازات المعطاة لرجال الأعمال في مصر من خلال النظر في تطوير الشركات وتقييم سوق الأوراق المالية من الشركات المطروحة للتداول قبل وبعد الثورة. أولاً، نقوم بتحديد الشركات المرتبطة سياسياً وإجراء دراسة حول حدث الثورة من 2010-11 (والأحداث المرتبطة بالشائعات عن صحة مبارك) لتقدير القيمة السوقية للصلات السياسية. ثانياً، نبحث عن المزايا التي تقدمها هذه الصلات من خلال النظر في سلوك الشركات المتصلة قبل الثورة. وأخيراً، نقارن العوائد المالية من الشركات متصلة والغير متصلة والنقيض منهم مع التقييم السوقى للاتصالات، ومع الفوائد التي وردت فعلاً في الماضي، لاستخلاص بعض خصائص الاقتصاد السياسي لعلاقة رجال الأعمال بالدولة في مصر خلال العقد الماضي.

1. Introduction

Popular perceptions of business elites have become quite negative in the region. “Cronyism” is now seen as the key characteristic of the economic opening that started in the 1990s and accelerated in the 2000s, and at the source of many ills including the job deficit, the rise in inequalities, and distortions to politics, which has prolonged the tenure of unpopular autocrats. The perceived “corruption” of the political and business elites was a key driving force of popular discontent. For example, a Pew survey reveals that in 2010, corruption was the top concern of Egyptians with 46% listing it as their main concern, ahead of lack of democracy and poor economic conditions (Pew 2011). This is confirmed by the Transparency International ratings – for example, Egypt moved from a rank of 70/158 in 2005 to 115/180 in 2008. We now know that this was not just about perceptions. In both Tunisia and Egypt, the ongoing trials of leading businessmen is starting to shed light on the ways in which influence was yielded for private gains – the granting of monopoly rights to close associates of the rulers, the selling of public firms and land at reduced prices, and the manipulation of the financial markets for the benefit of a few insiders.

In Tunisia, the Ben Ali and Trabelsi families monopolized business opportunities. Similar stories about favoritism and insiders abound in Syria, Libya, Yemen, and Algeria, where political cronies seem to control large chunks of the private sector. In Egypt, it seems that the trend was accelerated in the last decade with the “market” reforms led by Gamal Mubarak. Many cases of state favors are well known, such as that of the Steel magnate who monopolized the iron bar market by becoming the sole buyer of steel pellet from the sole national producer of iron pellets (a firm which he came to control with the support of credit from the state bank), or those of several construction magnates (including a minister of tourism of the time) that built new towns and a tourism industry by taking advantage of cheap public land and credit. A few years ago, these same cases were heralded as successes of state intervention “the Arab way”, where economic liberalism went hand in hand with state involvement in nudging the private sector to create new industries and build companies that would become competitive regionally if not internationally. But the performance of these state favored firms could not be evaluated easily. Their stock prices were generally rising, but this could have reflected either good profitability and growth opportunities, or simply the value of rising state largess.

Indeed, despite perceptions, it may or may not be true that the type of state-business relations that developed in the Arab world in the past decade was bad for growth and jobs. The central question of why has the Arab region under-performed in terms of job creation given what looked on paper as impeccable market reforms has been debated for years. Some have argued that the market reforms have not gone far enough; others, that it had become dominated by “networks of privilege” (Heydeman 2004, World Bank 2010), and “crony capitalists” (Sadowski 2001), with myopic short term interests that have stifled competition, innovation, and ultimately job creation. Conceptually, there is nothing intrinsically bad about close state-business relations. Khan in particular describes how industrial policy can foster accumulation and the development of new sectors, as had happened with Korea’s Chaebols for example (Khan 2010). To the extent that they have the right incentives to perform, close state-business relations can form the basis for dynamic capitalism and an effective state. But they can also become sources of influence; corruption and other forms of rent seeking that distort economic and political incentives.

The literature on Arab capitalism is however still in its infancy and does not provide clear answers. There has been more work on Egypt (e.g., Skafianis 2004; Roll 2010), Morocco (Henry 1997), and the Gulf (Hanieh 2011), and recent work by Steve Heydeman and associates (Heydeman 2006), and from the World Bank (2009) but essentially, it has remained difficult to get direct measurements of the extent of favoritism, and there has been

no serious attempts to statistically evaluate its impact on the economic performance of the last two decades of economic liberalism under the guidance of the now defunct autocratic states. Yet, this is a central piece of the puzzle in trying to understand the genesis of the Arab Spring (Diwan 2011), as well as in figuring out the ability of the new governments especially in Tunisia, Egypt, and Libya to manage to deliver faster rates of economic growth and job creation if they managed to eliminate favoritism.

Evaluating system performance, relative to a difficult to define counterfactual is by no means an easy task. But at a minimum, one should be able to describe more objectively and quantitatively some of the characteristics of the *ancient regime*, and to develop a clearer sense of the impact of favoritism on some segments of the economy. This suggests three main areas for research: is there evidence of favoritism? How do the connected operate in an economy that is ostensibly liberalized and thus out of reach of governmental dictates? More ambitiously, are there some objective ways of evaluating the impact of the types of state-business relations that were developed in the 2000s in the region on economic and political performance? And by implication, what are the types of measures – legal innovations, strengthening of institutions, political alliances - -that would be needed to reform Arab capitalism in ways that enhances development prospects?

A study of the Egyptian stock market around the momentous events of 2011 can be expected to help answer some very important questions about the nature of state-business relations in Egypt before the revolution, which usually cannot be addressed because of the difficulties of defining a counter-factual. The advent of the stock market is relatively recent in Egypt. The market only really took off in the last decade of Mubarak's 33 years reign, when his son Gamal Mubarak, working closely with a group of young economic experts and of ambitious businessmen, took it on himself to define a new vision for Egypt after 2004, and by doing so, started to redefine the political program of the aging ruling party. After the socialism of Nasser (1958-68), the first opening of Sadat in the 1980s, and a long transition with stabilization efforts and timid reforms of the liberal type under Mubarak's first period up to the early 2000s, a new and vigorous effort was under way to modernize Egypt's private sector – or so did the official narrative go. This effort included a push to create an internationally competitive corporate sector, in the midst of a renewed effort at privatization, trade reforms, and a costly financial sector re-capitalization in 2005. The 1990s saw the emergence of a new class of capitalists connected to the state who grew immensely large very fast – the latest appellation, the “Whales of the Nile” is due to Skafianos (2004). After the mid-2000s, a few well-established insiders firms were joined by new enterprises more closely connected with the President's son. These connected firms took on the modernization of the economy. These dynamic firms were backed by state favors and international and Arab finance, contacts, and know-how; they were prime beneficiaries of an invigorated privatization drive, and they spearheaded the development of new sectors and the modernization and expansion of old ones. Over the decade ending with the Revolution, the Sinai became an international tourist spot, telephony took off, consumers products went large scale, national distribution was reorganized and rationalized within larger corporate structures, and massive housing projects were developed backed by a much expanded construction sector. The rising businessmen were not only well connected, but they also occupied important posts in Government, the ruling party, Parliament, and various influential boards and Committees (see for instance Osman 2010).

In this context, going public was a way for these connected businessmen with ambitions of fast growth to expand their ability to raise finance, given the strict way in which banking

regulation had been imposed in Egypt after the recapitalization of the sector.¹ Market capitalization grew from US\$ 28 billion in 2002 (29% of GDP) to US\$ 82 billion in 2010 (40% of GDP), reaching 107 percent of GDP in 2007, before the global financial crisis. The crash of the market by 40%, in January 2010, marks the end of an era. Some of the large firms, including the most connected, fell by as much as 80%.

In this paper, we consider that state-business relations take the form of an exchange of favors between connected firms and the state. We consider that state-business relations can be good or bad for development, depending on the forms they take, and on how these forms influence economic and political incentives. Our discussion will thus be at the intersection of several literatures – on the political economy of industrial policy, the analysis of state-business relations in autocratic regimes, and the corporate literature about minority shareholders expropriation. We are interested in three layers of issues.

The first set of issues relates to the value of the political connections to shareholders. For each of the firms involved this would reflect the value of the gifts minus favors returned by the firms, as seen from the shareholders' perspectives. There are no guarantees a priori that this value would be positive. As an event study, the revolution of January 2010 presents a near perfect case. It was largely unexpected. It was also largely driven by a sense of rising corruption related to these very same oligarchs. So when the stock market opened again in February 2011, with Mubarak, his sons, and most of the connected businessmen in jail, it was quite clear that these firms high level connections had lost most if not all their value. As a result, the securities of all these firms must have been re-priced. To the extent that it is possible to pinpoint which of these firms were “connected”, this event presents a unique opportunity to learn from the market how it estimates the value of these “connections”.

The second set of issues revolves around the identification of the advantages provided by connections that bring value to firms. To the extent that it is positive, the value of connections must reflect various benefits that the connected firms had access to that increased their profits relative to a situation with no such connections. Using publicly available corporate data on traded firms, we identify some of these benefits by comparing financial characteristics of connected and unconnected firms. In particular, we explore whether connected firms had better access to capital, larger market shares, or had to pay less taxes, than unconnected firms.

Third, can we say whether the provision of preferences for connected firms is best viewed as part of an industrial policy to improve the national economy, or as part of a gift exchange between firms and politicians, with connected firms playing some politically useful roles such as financing political campaigns of the ruling party or controlling the new heights of the economy in order to prevent opposition forces from occupying these influential positions?

The paper addresses these three sets of issues sequentially. In Section 2, we present the event study and we supplement it with other events connected with rumors about Mubarak's death in 2010, 2007, 2005, and 2004. In Section 3, we explore the financial performance of “connected” firms during the preceding years. In Section 4, we ask to what extent existing corporate data can allow us to characterize the political role of “cronyism”. In Section 5, we conclude with a summary and a discussion about the macro effect of cronyism.

2. Stock Market Reactions to Mubarak's Demise

The celebrated Fisman study (2001) attempts to measure the value of political connections in Indonesia by looking at the relation between reports on Suharto's health and the value of firms that have special connections to the regime. He finds a significant negative correlation. Other studies at the country level have tended to look at the evolution of corporate boards and

¹ In particular, a binding constraint to growth for ambitious firms was the 5% limit on bank equity per firm, which led to incentives to increase equity in order the tap more bank financing.

executives in terms of their members who are also part of government, and they too tend to find significant benefits to connections – see for example Roberts (1990) and Goldman et al. (2009) for the U.S., Ramalho (2003) for Brazil, and Ferguson and Voth (2008) for Nazi Germany. In a recent paper, Boubakri et al. (2010) conduct a simulated event study in a global panel study of 243 firms by looking at the impact of entering into a political connections on firms value before and after connections are established. They show that firms increase their value after establishing connections.

In event studies, the main challenge is to find ways to determine precisely which firms are connected in order to be able to measure precisely the value of connection. Unlike the case in other event studies, especially those in OECD countries, we have found that the composition of EGX firms boards and the names of their executives are not too informative about their political connections, which may be due to the fact that Egyptian networks of influence are more personalized than those in OECD countries (refine). We have chosen to rely on what appears to be extensive market knowledge in Egypt of the inner working of connected firms. In doing so, we have focused on the stock brokers' knowledge. In separate interviews, we asked 3 of the main brokers in Cairo to indicate which of the 116 top firms were receiving special state favors. Twenty-two firms were on each of the lists, and we took those as the set of connected firms for this study (CF, the balance being the non-connected firms NCF). Many firms in our connected sample are currently engaged in court cases relating to accusations of corruption such as price fixing, insider trading, or conflict of interest. Our data comes from the Orbis database and includes more than financial 200 variables providing financial and ownership of 225 public companies in the case of Egypt. Stock price market information comes from Bloomberg and DataStream. In the end, 162 companies matched between both databases.

Our interviews occurred after the revolution in March 2012. This may seem to indicate some logical circularity – only firms where there was smoke (and whose prices were falling, a fact that these traders knew only too well) were being signaled to us. However, we do not believe that this hurts our event study as we are trying after all to measure the value of connections as perceived by the market. There may be some hidden secret deals, which no one caught, and as a result, we may not be able to identify *all* the connected firms. This means that we will not be able to estimate the total value of connections. But this is an impossible goal anyway given that listed stocks are only one component of the Egyptian economy.² Even a partial set would thus still be able to give indications on how connections are valued relative to the size of firms, and how connected firms behave. The second risk is that some firms are incorrectly identified as connected when they were not. Given that the interviews come after the market's initial fall, and that the traders had an intimate knowledge of prices, these would be cases where the whole market is wrong, attributing to some firms connection value when there is really none. This should not cause difficulties for the event study, but would bias our results on corporate behavior. To avoid this problem, we compare the use of a short and a longer window to ascertain the effect of new information over time on prices. One important source of news has been the ongoing court cases which has started to reveal not just the favors received by these firms, but also the possible penalties that they may be subject to (such as repayment of unpaid taxes, return of illicit profits, etc.).³

² Egypt has a large informal sector and an "army" economy, which are poorly connected to the formal corporate sector. The military connected firms are thought to be large (estimates go from 10 to 30% of the economy and it is connected to international and Arab capital, but it remains secretive and unwilling to follow the capital market requirements about financial transparency.

³ To the extent that connected firms are losing advantages in ways that can be expected to benefit their competitors (who could receive more credit in the future, or be able to compete more fairly for a larger market share), we can also expect those to gain some value in parallel.

The Egyptian stock market developed considerably in the last decade before the revolution, partly as the result of the entry of foreign investors into the market. The Case 30 index (these are the 30 largest firms in the EGX) exhibited a very strong growth from 2002 to 2007 with an average yearly growth of 27%. The real value traded also increased significantly from 2002 to 2007 with a turnover ratio that reached 50% in 2007 but the market remained concentrated among some big players – for example, the capitalization of the ten largest companies reached was about 50% of the total market capitalization in 2010 (Feyen 2010).⁴

The stock market value of the 100 largest firms on the EGX fluctuated during 2008-11 between \$42 and 64 billion (at market exchange rate) -- the value of our group of “connected firms” fluctuated between \$16 and \$30 billion, representing 47% of the total at the highest time, and 38% at the lowest. Table 2 shows that this was largely explained by the phenomenal growth in the size of CFs – in 2002, the median CF is 50% larger than the median NCF; by 2010, this grows to seven times that of the median NCF! As a result, the group of connected firms came to be significantly represented in the Core 30 firms (the 30 largest firms on the EGX) – 10 of our 20 connected firms belong to that group. Connected firms are mostly present in construction, services and textile and metals, which are mainly somewhat protected sectors serving internal demand rather than exports. Non -connected firms are also in these sectors but with firms of smaller size.

Our main focus is the uprising that started on January 15, 2011. The market closed between January 27 and March 23 2011. We use two event windows: a short one, starting 5 days before the market closed and lasting until 5 days after it re-opened; and a longer event window that starts on January 5 and ends on April 31, 2011. We also look at four other events that we could find in the local media related to rumors about the health of President Mubarak. These are:

- March 6th 2010: Rumors that Egyptian President Hosni Mubarak has died while undergoing a gall bladder operation in Germany on March 6th. Only on March 15 2010 does the Egyptian Embassy in the US deny the rumor.
- August 2007. Ibrahim Eissa, editor of *Al-Dostour*, was questioned on September 6th by state security prosecutors on the grounds of disseminating rumors about President Mubarak's health could constitute incitement to unrest. Central Bank officials testified in court that investments of up to \$350 million left the country on the days that Al-Dustour published the reports on the president's health. And Mubarak himself gave an interview to the *Ahram* on August 31st calling on the public to ignore any rumors.
- June 17th 2004 Mubarak appeared on TV to contradict rumors about his death following the cancellation of a scheduled meeting with Palestinian prime minister.
- November 19 2003. Mubarak faints while addressing Parliament.

In each of the events, the market fell as a whole, indicating that the event had economy-wide implications. The index of the top 100 firms lost a whopping 26% (weighted by size and cumulative) during the first quarter after the Revolution. The other events related to Mubarak's health were relatively minor in comparison. In all cases, the CFs, as a group, lost a larger part of their value than NCFs; on average, CFs lost 31% while NCFs lost only 16% (see Table 2).

The market equity price indexes are depicted in Figure 1. It is interesting to observe that the market's early losses in the month after the Uprisings in the beginning of 2011 are not recovered by the end of 2011, suggesting that the market did not over-react initially and/or that the new information that came out after the first quarter did not affect the initial valuation

⁴ Free float on the Egyptian stock market is however limited (more than 30% of companies have less than 5% of free float) and shows a strong concentration.

of connections. (But this observation may not stand up to more careful analysis – see below). It also seems that the losses sustained in 2010 were not recovered fully, as if the market started to factor in the probability of the future demise of Mubarak. This would suggest that our market based estimates of the value of connections using the Uprising event alone could result in an under-estimate.

But the differences in the average price movements of the set of connected and unconnected firms reviewed so far do not necessarily reflect only differences in levels of connections. They can also reflect other differences, such as differential sensitivities to market or to revolution sector specific risks. We thus need to make two corrections, one related to the sensitivity of firms to the aggregate shock experienced by the economy, and the other, their sensitivity to sector specific shocks connected to the revolution.

The large market fall indicates that the sudden departure of Mubarak was expected to lead to period of uncertainty and instability, with possible risks of dramatic shifts in power within society, and thus, possible large changes in economic policy (as well as foreign policy). The question here is how each stock would be expected to react to market movement. To answer this, we estimate a simple market model to factor out price changes that are directly related to the movement of the market index.⁵ We estimate standard betas for all stocks, over a one-year period just preceding each event (we conduct robustness checks by also using shorter estimation windows). These betas (not reported) tend to be highly significant, for more than half of them above 1.5 or below 0.5, indicating that the structure of abnormal returns deviates greatly from the uncontrolled returns shown above. The calculated “abnormal returns”, which are in excess of what the return predicted by the market model, are also shown in Table 2. The CARs are deviations from the market trend – they can be positive or negative and their overall effect is near zero (the market index is weighted).

But in response to a shock with such multi-dimensional implications, it is likely that a single risk dimension (market risk) is insufficient to capture all the action -- for example that there is a likelihood that alcohol would be prohibited in the future if the new regime becomes more conservative religiously (the two beverage related stocks did collapse), or that labor strikes will become more prevalent during the transition thus affecting performance in all labor intensive sectors, or that sectors connected to land will suffer as a result of the controversies over the acquisition of Government land by firms in sectors that use land more intensively. We therefore control in the regressions below for sector fixed effects.

We use median regressions because corporate data is noisy, and so averages can be quite misleading and medians are a better measure of central tendencies. The interpretations of the coefficients are similar, except the result of a median regression represents the expected value for the median firm, instead of the average firm in a standard OLS. We estimate regressions for each of the events separately of the type:

$$CAR(i) = a + b PC1(i) + c SEC(i) + x(i) \quad (1)$$

Where CAR is the excess return of security i, PC is the CFs indicator (a dummy that takes the value of zero for NCFs and 1 for CFs), SEC is a vector of sector dummy variables, and x is the error term.

The results are in Table 3. The coefficient b is significant in nearly all the regressions (except for the 2004 event), and the vector c in some regressions and for some sectors. This confirms that connected firms have lost more value than others during these events *on account* of their connections, that is, when controlling for market-wide and sector specific effects, size, and connection to land issues. There are, however, interesting variations across events.

⁵ We estimate a market model as follows $CAR(i) = R(i) - \beta(i) * R_m + e(i)$ where R_m is the market return

The effects of the 2004 event (and 2003, not reported) show no significant effects for the connected firms. This seems to indicate that the networks of influence later established by our 20 firms were not yet in place, or at least, well known by the market. The 2007 event on the other hand has a large and significant 8% effect. It seems that by March 2010 already (and possibly before), the market had started to assess the value of connections. The event of March 2010 is less dramatic but equally significant. The group of connected firms lost 2.3 percentage points.

During the Arab Spring, the stocks of the group of CFs fell on average by 14.3 to 19.1% points on account of their connections, depending on the exact specifications of the event window (and window for estimating betas), in addition to sector effects experienced by firms in particular sectors (the land and case 30 dummies were not found to be significant in all regressions and thus do not add information to the sector effects). The connectedness effect is largest for the long window, suggesting that unlike what we see in the raw data, new information about the value of connections did emerge with time, presumably when the intentions of the new government to prosecute figures from the old regime became clearer.

After the 2010-12 event, the probability that Mubarak would survive as a head of state was close to zero. Even though the probability that connections will persist was not likely to be as low (and indeed, a candidate sympathetic to the connected firms was a close second at the subsequent presidential election of 2012), the about 15% discount on CFs, while an underestimate for the total value of connections, must have been quite close to the full value as one can get.⁶ To give a sense of magnitude, given that the value of the connected stocks was about \$30 billion in 2010, the total valuation by the market of the connections of these 20 firms was about \$4.5 billion.

We can also compare what we learn from the 3 last events and speculate about "amplification" effects. The overall market fell by 1.4%, 3.6%, and 18% for the 2007, 2010-03, and the Arab Spring (short) events. Assuming everything else to be constant, and that the probability of Mubarak's demise in 2011 was 100%, we would estimate linearly that the market must have expected the probability of Mubarak's demise in 2007 and 2010 to be respectively 8% and 20%. If we applied these probabilities to the total value of connections (taken to be the losses of the CFs in 2011, which are about 15% of their value), then we can compute that the connected firms should have fallen by 1.2% and 3% respectively in 2007 and 2010. In reality, we have estimated empirically that the value of the connected firms fell by 8% and 2.3% respectively in 2007 and 2010. This would tend to suggest that the market reacted sharply to its discovery of CFs type risk in 2007, re-pricing their future expected returns in a more risk averse way (as suggested by Figure 1).

3. Performance of Connected Firms in the Past

In this section, we investigate some of the key advantages enjoyed by connected firms that may give value to connections. State favors to particular groups could include preferential treatment to insiders such as favoritism in public sector procurement, low-cost privatization, public private partnership that do not maximize the benefit to the state, tax exemptions, unchecked monopoly power or stock market manipulation, preferential access to land, preferential access to finance (including state banks), or the waving of regulatory constraints.

A large literature has looked at how firms may gain from political connections, with most studies finding strong debt effects, and to a lesser extent, tax, market power, bailout, and state favor effects. Studies that show the connections allow for larger debt include Cull and Xu (2005) for China, Johnson and Mitton (2003) for Malaysia, Khwaja and Mian (2005) for

⁶ The effect seems nevertheless quite larger than what is found in other event studies (e.g. Boubakri et al. 2008), which tend to be in the range of 3-8%.

Pakistan, and Leuz and Oberholzer-Gee (2006) for Indonesia. Some of these studies also find higher default rates and higher occurrences of bailout. In their panel event study, Boubakri et al. (2010) shows that firms increase their indebtedness after establishing connections. Other studies show other effects such as more government contracts (Goldman et al. 2008), and more regulatory protection (Kroznor and Statman 1998). Most studies examine individual countries. Faccio et al. (2006) look at a panel and finds that connected firms have higher leverage, pay lower taxes, have stronger market power, are bailed out more often and that this occurs more often in corrupt and poor countries. They recognize that while connections may explain these differences, it is also possible that these types of firms are more likely to establish connections.

It is also useful to get a feel for magnitudes before delving into Egypt. Faccio (2010) uses a matched panel that includes several thousand firms in 47 countries. She finds a significant leverage effect, with a size of .03 to .07 (depending of strength of connection) in the overall panel, and at up to .17 for Thailand and about .10 for Russia and Malaysia (the countries where the effect is largest). She finds that a sizable, but generally not significant tax effect, and a significant extra market share secured by connected firms is about 6%. In her sample, CFs are on average 3 times larger than NCFs.

Given data limitations, we are able to investigate here three elements: debt, taxes and market power. Looking first at the raw data, the simple averages reported in Table 4 suggest that CFs have higher and rising levels of debt relative to the size of their equity compared to NCFs, and that they have grown much faster. But again, these apparent differences may be due to fact that CFs tend to be large and that large firms enjoy special treatment by the credit market, or that they are over-represented in sectors that use up a lot of debt, or that have large returns to scale. To control for these factors, we run the following median regressions:

$$\text{LHS} = f(\text{connectedness, case 30, year, sectors, error}) \quad (2)$$

Where the LHS dependent variables are in turn the firm's debt to equity ratio (total debt to shareholder equity), market share (measured in terms of size of the firm's total assets relative to the total of those in the firm's sector), tax payments (and also dividend yield and growth in fixed assets which we will discuss less). We run both panel regressions over 2007-2011 as well as year-by-year regressions. Results are in Tables 5a (panel) and 5b (year by year).

Debt. The results clearly indicate that connected firms borrow more, given their equity base and sector of activity. This is however not because they are large. Indeed, belonging to the "Case 30", the group of top EGX firms, does not seem to confer an advantage. The debt benefit is large in the panel, at 20 points (i.e. an average debt to equity ratio of 68.1% for NCFs and of 89% for CFs, abstracting from sector effects), more than the highest performer in Faccio (2010) sample (Thailand).

The year-by-year regressions reveal that the situation had become more polarized over time, with non-connected firms' debt to equity ratio falling (the constant in the yearly regressions), and those of the connected firms rising (the slope of the "CF" dummy variable). The main switch seems to happen after 2007. By 2010, the connected firms' debt to equity ratio was larger than similar firms with no connections by 130 points (i.e. 184.3% vs. 61.8%), abstracting from sector effects, a huge difference. Indeed, inspection of Table 5a reveals that of the nearly \$24 billion increase in total debt in our sample between 2005 and 2010, a whopping \$21 billion went to CFs alone!

Unlike other studies, there are clear signs of causality here. Connected firms went into a borrowing spree after the market recognized their connections, as shown by the 2007 event study. Now since they were larger than non connected firms in 2002 already (as reported above, their median size was 50% larger than NCFs in 2002, Table 2), it may be that they

have tended to benefit naturally from credit expansion just because of their size. However, the Case30 control is not significant in the debt regression, indicating, as mentioned above, that no size effect is at play. We are therefore led to conclude that it is their connectedness rather than their size that allowed them such a large advantage in the debt market.⁷

Market share: The results clearly indicate that CFs enjoy extra market power relative to NCFs on account of their connectedness. On average, they tend to have an extra market share of 8.7% -- in addition to a market-wide average of 11.7%, a possible Case30 (i.e. large firm) effect of about 5%, and varying sector effects. The size of the effect is similar to the average finding in Faccio's (2010) panel. Moreover, inspection of the year-by-year regressions indicates that this effect comes to life in 2007 and become more significant over time (but at about the same average size). Comment on size of premium compared to other studies.

Tax effect: there is no evidence that connected firms paid fewer taxes than non-connected firm. The CF coefficient is not significantly different from zero in all regressions. This seems to tell us that some institutions were not biased towards the CF and presumably functioned well even under Mubarak's reign. Also, note that on average, firms in Egypt paid about 15% of their net income in taxes, which is a very low rate by international standards. For example, in Faccio's (2010) international sample, firms pay between 29.7 % (for CFs) and 32.7% for NCFs).

4. Industrial Policy or Exchange of Favors?

State support to the connected firms in Egypt could have been an instrument for quick and high profits, or a tool for legitimate industrial policy. Successful industrial policy manages to align rewards (such as privileged access to finance) to corporate performance. But equally, politicians may grant favors in exchange for politically valuable favors such as the financing of party activities, support for the ruling party clientele, or the denying to opposition related businesses access to the "heights of the economy". To what extent can our data help us characterize the state of state-business relations under the last part of the Mubarak reign?

Shleifer and Vishny (1994) argue that politicians try to influence firms through subsidies and firms try to influence politicians through bribes. More generally, as noted in the introduction, we can conceptualize the state-business relation by an exchange of gifts between firms and politicians. In this relation, connected firms obtain many advantages and this should increase their value. However, because politicians may care more about other skills than management skills (for example loyalty), these firms may be badly managed. They may also have to return politicians' favors, for example by creating more jobs rather than by being economically efficient, or by financing the politician political campaign and this would reduce their value. Bertrand et al. (2007) find that firms managed by connected CEOs in France create more jobs and pay higher wages, but have less value. So the net effect could theoretically go either way. On average, country studies tend to show that the benefits are greater than the costs – for example, Roberts (1990) and Goldman et al. (2009) in the US, Ramalho (2003) for Brazil, and Ferguson and Voth (2008) for Nazi Germany. Similarly, Boubakri et al. (2009) find that firms increase their financial performance after establishing connections. However, Faccio (2010) finds that in spite of the advantages they have, connected firms have a poorer performance in her panel (which is not an event study), with a lower RoA of about 2.4%.⁸

⁷ With high leverage, it is to be expected that connected firms would react strongly to the market decline occasioned by the Uprisings. This high leverage should theoretically, be reflected in higher betas used when calculating abnormal returns. Is it the case? We checked by running regressions of the type $b_i = f(\text{CF}, \text{case30}, \text{sector}, \text{year}, \text{D/E})$ – we found that being connected adds 0.32 to betas, and case 30 adds 0.45, both effects being significant at 10 and 5% respectively).

⁸ So were shareholders of connected firms disadvantaged relative to those of non-connected firms? In other words, how to reconcile the post-revolution market drop in the value of these firms with their low RoAs? Faccio discusses this point and speculates that firms' values must have been low to start with.

In the case of Egypt, a quick look at the data suggests that it may well be industrial policy. Connected firms invest more than unconnected ones. And if anything, they paid less of their earnings in dividends, suggesting that new borrowing was not crowding out equity contributions to investment. To look more deeply into the issue of the productivity of industrial policy, we need to look into the return to capital in each of the sectors. To start, we can compare directly the profitability of CFs and NCFs. We use regression analysis similar to equation 2, with the following variables on the LHS: ROA and ROE (both book value), and PER. Results are in Tables 6a (panel) and 6b (year-by-year regressions).

Let's start by looking at the rate of return on assets and equity over the past 5 years (RoA). We find that connected firms have a lower return on assets with the effect at about -2.1% for the 2007-2011 period, and are highly significant. This is about the same size as measured by Faccio (2010) in her sample.⁹ Theoretically, this rather large discount may be due to three factors: return to scale given their large borrowings, systematic management inefficiencies in CFs, or to outflows from these firms to politicians.

Two possible narratives are a priori consistent with the evidence presented. There is first a somewhat positive story, a variant of IP, which cannot be easily dismissed. Egypt's was in a messy state in the early 2000s, struggling to escape the weight of its past, and its leaders were trying hard to get the country to grow out of its weaknesses. A predatory bureaucracy and high levels of political risk kept investors away – they required high rates of return to invest in Egypt. Thanks to the state protection they enjoyed and the ensuing lower perceptions of risk, a few trusted entrepreneurs were willing to invest in Egypt's future against lower rates of return. As a result, they put in the equity and were able to attract large loans (the demand for credit by others was low, as in the first story). As a result, their market share grew. This is essentially a story of favors oiling the wheels of the economy, and leading to favorable outcomes, compared to the counter-factual with much less investment and growth.

The alternative “cronyism” story is about connected firms that benefit from state favors by unfairly excluding their competitors – this is a story of corruption as sand in the wheel of the economy. Privileges in this case entail larger market shares (boosted by state contracts for example, or a preferential access to inputs such as land) and their purpose includes denying the heights of the economy to potential regime opponents. The larger market share in turns allows privileged firms to secure a large share of private credit. Their returns are lower than unconnected firms (controlling for size) because they are run inefficiently -- their owners and managers are selected because they are trusted rather than skilled and because they bankroll the ruling party. In this regime, capital flows to inefficient sectors reducing economic growth directly. Moreover, it is also possible that this highly unfair competition reduces the dynamism of the economy as a whole, because energies go to rent seeking rather than to value maximization, and because innovating does not pay in non-competitive markets.

The question confronting us is whether we have sufficient information – from observed market and corporate behavior -- to discriminate between the two stories. Let's start with the greasing the wheels hypothesis and confront the story with other information we have on differences between CFs and NCFs. The narrative is consistent with what we have discovered about market valuation of connectedness: in this story, the 20% of equity value that is lost by connected firms after the revolution reflects the fact that their assets became valued at the higher and riskier rate of return, given that these firms would now be subject to as much predation as the rest of the market. The story is also, on a basic level, consistent with

⁹ Feyen (2010) measure the RoA of the top tier Egyptian corporations on the EGX at 11% during the period 2003-07. Our regressions over the period 2005-11 yield an RoA of 6 to 9% for NCFs, depending on the sector they are in. This indicates that RoAs have fallen over time, which is also reflected in the negative (but not significant) coefficient of time dummies of recent years.

observed corporate behavior: firms that are privileged by getting protection from predation would demand more credit and would naturally expand their market share. In this narrative, access to credit and to market share does not have value per se – the constraints to growth are on the demand-side and are related to the high costs of doing business due to high predation risk. However, one central characteristic of this narrative, which is to explain the low RoA in CFs by invoking decreasing returns to scale and their larger investments, is not supported by the data. Indeed, when controlling for size (with a dummy for the Case30 stocks), we find that there is a highly significant size effect, but that it goes the other way – that is larger firms tend to have higher RoAs.¹⁰ It thus seems that large firms are at an advantage, perhaps because they are better managed, or that they derive gains from market power. So all in all, the oiling the wheels hypothesis does not seem supported by the overall evidence as it fails in one important way to conform to observations.

Let us now turn to the sand in the wheels hypothesis. In this narrative, CFs are larger because they are “given” market shares, but are run inefficiently and may pay back politicians from corporate income, and this explains their lower RoAs. But then, what it is that explains the fall in their value post uprisings? After all, they are freed from political obligations by the uprisings, and on this score, their value should go up, not down. Their main advantage is market size which allows them to obtain larger loans, and thus to leverage the businessmen’s equity and get larger earnings. So we need to look at the return to equity to account for the benefit of higher debt – CFs may have an ROE above or below that of NCFs, even if their ROA is lower, because access to capital boosts their ROE (while low ROA depresses it). In fact both groups of firms seem to have a similar RoEs. This can be observed in Table 5b: the CF effect is only significant in panel regression but not in most of the yearly regressions, unlike the RoA regressions. This is consistent with other results: essentially, for a \$100 of equity, a CF with the average leverage of this class has assets of about \$270 (using the 2010 average D/E ratio from regression 5a) which earn an average RoA of 4% (Table 6a), while an average NCF has assets of \$160 that make an average RoA of 6%.

Note that this does not mean that shareholders would be indifferent between the two types of firms – they would certainly prefer to be owners of firms where the market price earning is at a premium. To check how market pricing takes place, we need to look at the PER, which indicates how the market has priced earnings in the past -- high PER indicate that the market regards those firms as either less risky, or to possess higher growth opportunities. Unfortunately, PER information is notable for its noisiness. Nevertheless, in the panel, we find that the CFs traded at a premium PER of 2.8% during the period 2007-11. The year-by-year regressions are not conclusive and reveal a lot of variability, but it is apparent that there was a major rise in the PER of the CFs in 2008, at the height of the borrowing spree, when growth opportunities must have appeared large. The average difference in the PERs over 2007-2010, which are respectively estimated at 8.03 and 10.8 for NCFs and CF (Table 6a) for example, would translate into a market price premium for CFs of about 30% which is close (above an under-estimate) to the price decline observed after the 2011 revolution. This indicates that much of the net price premium enjoyed by the CFs just before the revolution was due not to higher earnings, but rather, to an expectation of higher earnings in the future (relative to NCFs). In fact, earnings are not expected to change, on average, since RoEs are about the same for the two groups of firms – the CFs will have to reduce their leverage with time, but they will earn a higher return on assets.

So the sand in the wheel story is consistent with both valuation and RoA differences. The 2% ROA difference is due to either management inefficiencies, and/or pay back to politicians. Is

¹⁰ Recall that CFs are only about 1/3 of the Case30 sample – so we seem to have enough variation in this dimension to take this result seriously.

this consistent with observed corporate behavior? Looking at the RoA yearly regressions, the effect does not seem to represent management inefficiencies. In the yearly regressions, it is clear that the CFs effect develops only after 2008 when it jumps from zero to a level of over 4% in 2008-2010. So it is unlikely that the RoA discount is picking up systematic management inefficiencies, because if it did, the effect would have started earlier. We are thus left with the conclusion that the most plausible story is that outflows from these companies went mainly to finance political favors, especially after 2008 and in 2009 in the run-up to the crucial 2010 Parliamentary elections.

5. Conclusions

The paper has shown large differences between CFs and NCFs in Egypt. Connected firms have lost more value than others during these events *on account* of their connections. In particular, in the weeks following the Egyptian uprising of Jan 2011, the stocks of the group of connected firms fell on average by 20 percentage points on account of their connections, in addition to sector effects experienced by firms in particular sectors. We then looked at the corporate performance of connected firms in the 5 years before the revolution to ascertain directly how they may have benefited from their connections. Given data availability, we were able to investigate empirically differences in four dimensions: their market shares in the sector where they operated, their debts, the taxes they paid, and their profitability. First, we found that connected firms had a larger market share than their non-connected competitors (an average advantage of 8% of the market). Second, we also found that they were able to borrow much more than their competitors, with an extra leverage of 25 points on average over the period, but with this advantage rising significantly over the period (they end up with an average debt to equity ratios of 1.7 compared to 0.8 for their competitors).¹¹ Third, and unlike what is often claimed on the basis of anecdotal evidence, we found no evidence that connected firms paid fewer taxes than non-connected firms, which seems to indicate that some institutions were more prone to favoritism than others. And finally, we found that connected firms have lower profitability than non-connected firms (for example, their return on book assets is only about 4% as opposed to about 6% for non-connected firms).

At a broader level, extensive state-business interactions can form the basis for dynamic capitalism or can become sources of influence and corruption that distorts politics and business incentives. We have mostly found in this study that the evidence suggests that the Egyptian case seems to fit the second characterization better. The CFs seem to be “given” a larger market share, which allows them to borrow more and grow faster, even though they make a lower return on capital. So at least part of the weaknesses of the past system resides in the misallocation of capital, which is costly. If credit had gone instead to the NCFs, it would have yielded an additional 2.2% return per year, and thus should have created more jobs. Clearly, while this is not insignificant, the effect is small relative to the economy and is a level effect only.

What matters most, at the end, is whether a dynamic form of capitalism was emerging or whether the economy was stuck in a low investment trap. That private investment in Egypt has struggled to stay above 10% GDP, and that capital flight has been estimated at over \$5 billion/year (Dev and Corso 2011) argue for the second interpretation. This suggests that in addition to the issue of misallocation (which is a level effect), there may have also been more dynamic effects at play (which should be investigated more carefully in the future). Part of this stagnation is observed in the behavior of the NCFs, which essentially did not grow in the last decade. This suggests that privileges and the lack of competition must have given incentives to NCFs to reduce investment in innovation.

¹¹ On this front too, this benefit is estimated to be much higher in Egypt than in other countries (Faccio 2010), or than in Pakistan for example, which is a country where connections are perceived to have high value (Khwaja and Mian 2005).

While the direct economic cost of cronyism may or may not be high, our results suggest that the political costs of the system to society may have been *very* large. Let's come back to the differing RoAs. As discussed before, this is evidence of mainly repayment favors, but also possibly some inefficiency in management and returns to scale. If we split this amount in half, we are talking of a leakage of about 1% of 30 billion or about \$300 million a year. This is from the listed corporate sector alone, and presumably, there are many other sources of cronyism in the country. This amount can make a significant contribution to an election and may explain why the regime has lasted so long, and had to be changed by a costly revolution rather than by more effective ways.

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Figure 1: Evolution of Valuation (Indices) for Market for CF and NCF 2009-2012

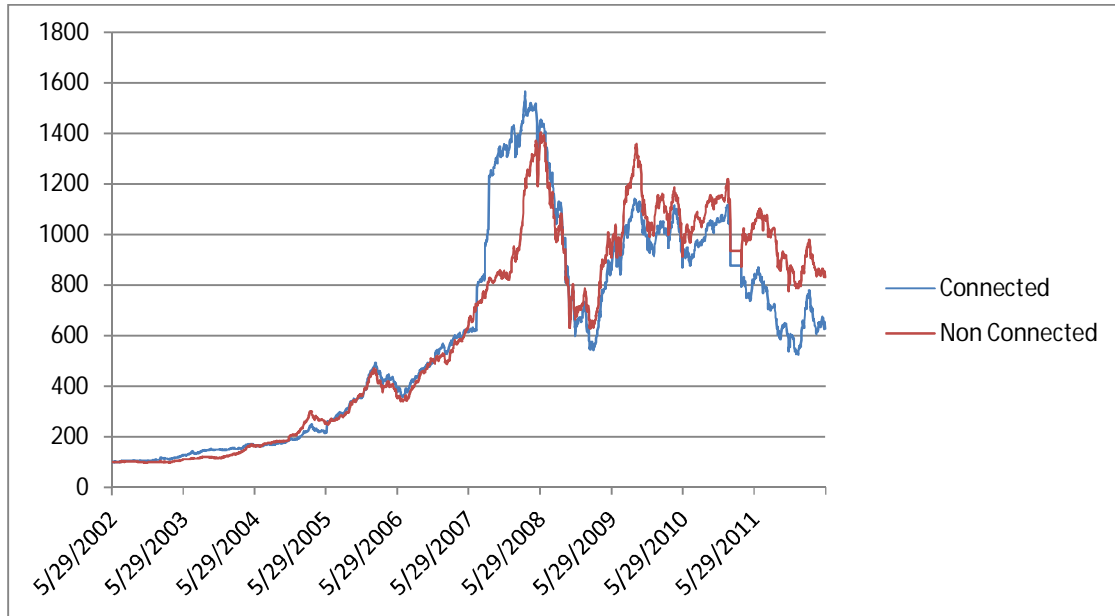


Table 1: Sector Characteristic of Connected Firms and Non Connected Firms (# firms)

Sector	Services	Metals	Primary	Wholesale	Construction	Chemicals	Textile	
NCF	19	7	5	2	25	4	13	
CF	6	2	0	0	6	0	3	
Sector	Food	Banks	Hotels	Transportation	Machinery	Publishing	Insurance	Total
NCF	8	4	3	1	1	1	1	94
CF	3	0	1	1	0	0	0	22

Table 2: Cumulative and Abnormal Cumulative Returns for CFs and NCFs over Various Events

		AS-long (%)	AS-short (%)	Mar-2010 (%)	Aug-2007 (%)	Jul-2004 (%)
All (non weighted)	CR	-20.2	-15.0	-5.5	-2.4	-4.2
	CAR	12.5	3.7	-2.5	-1.4	-2.1
All (weighted***)	CR	-26.0	-17.9	-3.5	-1.8	-3.4
	CAR	-0.5	-0.4	0.0	-0.2	-1.5
Connected	CR	-31.0	-23.0	-5.7	-3.5	-3.5
	CAR	-5.7	-7.7	-2.3	-8.5	-5.1
Non connected	CR	-16.3	-11.0	-5.1	-1.7	-3.1
	CAR	16.7	6.5	-2.6	0.1	-1.8

Note. Timing of AS event: short: Jan 20 to March 29 (5 days before market closes to 5 days after it reopens); long: Jan 5 to April 31 2011.

Table 3: Event Analysis for Four Events: Explaining Cumulative Abnormal Returns

	Arab Spring, long event	Arab Spring, short event	Arab Spring, Long event, FE	Arab Spring, Short event, FE	March 2010, wt FE	Aug 2007, wt FE	June 2004, wt FE
CF	-0.191*** (0.0614)	-0.143*** (0.0333)	-0.171*** (0.0621)	-0.147*** (0.0348)	-0.0232* (0.0136)	-0.0818* (0.0464)	-0.0336 (0.0250)
land	-0.0714 (0.0474)	-0.0063 (0.0257)	-0.0748 (0.0484)	-0.00013 (0.0272)	0.0100 (0.0100)	-0.00219 (0.0327)	0.000427 (0.0185)
Constant	0.195*** (0.0293)	0.0695*** (0.0159)	0.152*** (0.0399)	0.0621*** (0.0224)	-0.0190*** (0.00557)	0.000236 (0.0191)	-0.0182* (0.0107)
Obs	108	108	108	108	106	89	81
R2	0.156	0.182	0.235	0.206	0.036	0.042	0.028
sectors			15	15	15	15	15

Notes: *** p<.01, ** p<.05, * p<.1

Table 4: Evolution of Asset and Debt, Median Over Groups, Current \$ Billion

	2005	2006	2007	2008	2009	2010
NCF: Median assets	0.10	0.10	0.11	0.13	0.13	0.14
NCF: Median debt	0.04	0.03	0.04	0.04	0.04	0.04
CFs: Median assets	0.11	0.28	0.44	0.82	0.91	1.00
CFs: Median debt	0.06	0.14	0.29	0.40	0.46	0.57

Table 5a: Panel Regression for Debt to Equity, Tax, and Market Power (plus div. yield and investment)

Variables	(1) D/E	(2) div.yield	(3) Tax ratio	(4) Assets Gr	(5) Market share
Connected	0.209*** (0.0571)	-0.0172* (0.00926)	0.00800 (0.00988)	0.0119 (0.0147)	0.0874*** (0.0193)
case30	-0.0784 (0.0532)	0.0170* (0.00962)	0.0232** (0.00985)	-0.0294* (0.0157)	0.0504*** (0.0195)
Construction	0.0613 (0.0477)	-0.00329 (0.00854)	0.00290 (0.00895)	0.0168 (0.0123)	-0.0654*** (0.0172)
Primary sector	-0.197* (0.109)	-0.0172 (0.0179)	0.0919*** (0.0182)	0.0205 (0.0326)	0.127*** (0.0343)
Wholesale	0.249* (0.145)	-0.0322 (0.0269)	-0.0305 (0.0254)	0.0144 (0.0486)	0.626*** (0.0609)
Chemicals	-0.176* (0.0999)	-0.0341* (0.0204)	-0.0296 (0.0218)	-0.00761 (0.0275)	0.179*** (0.0375)
Textiles	0.00416 (0.0602)	-0.0142 (0.0119)	0.0211* (0.0117)	-0.00721 (0.0167)	-0.0349 (0.0224)
Banks	0.259*** (0.0999)	0.0413* (0.0213)	0.0418** (0.0186)	-0.0520** (0.0254)	0.238*** (0.0409)
Machinery	-0.433*** (0.161)	-0.0741 (0.0484)	0.00815 (0.0329)		0.893*** (0.0676)
Transport	-0.194 (0.161)	0.0735** (0.0308)	0.0385 (0.0301)	0.0307 (0.0421)	0.893*** (0.0676)
Food	0.0975 (0.0651)	-0.0181 (0.0118)	0.0324*** (0.0125)	0.0179 (0.0203)	-0.0448* (0.0235)
2007.year	-0.0472 (0.0656)	-0.0163 (0.0197)	0.00633 (0.0123)	-0.0252 (0.0199)	-0.0135 (0.0318)
2008.year	-0.0738 (0.0661)	0.0111 (0.0193)	0.00275 (0.0122)	0.0106 (0.0185)	-0.0183 (0.0316)
2009.year	-0.145** (0.0653)	-0.00716 (0.0191)	-0.00567 (0.0123)	-0.00392 (0.0174)	-0.0287 (0.0313)
2010.year	-0.143** (0.0651)	0.0111 (0.0190)	-0.00848 (0.0124)	-0.0345** (0.0170)	-0.0229 (0.0316)
2011.year	-0.180*** (0.0664)	0.0246 (0.0192)	-0.00846 (0.0130)	-0.0214 (0.0190)	-0.0229 (0.0316)
Constant	0.681*** (0.0572)	0.0578*** (0.0182)	-0.155*** (0.0105)	0.116*** (0.0151)	0.117*** (0.0262)
Observations	445	404	428	268	988
R-squared	0.117	0.098	0.108	0.079	0.378

Notes: (apply to next tables as well): D/E is Shareholder equity (book) minus intangible assets over total liabilities; market power is share of total assets of a firm over the total assets of all firms in the industry; div yield is the dividend per share over the price per share; annual growth of long-term fixed assets; Tax ratio is tax over net income. *** p<.01, ** p<.05, * p<.1

Table 5b: Yearly Regressions: D/E, Tax, Market Power (and Investment) -- Slope for CF and Constant

Year	2005	2006	2007	2008	2009	2010
Debt to equity regression						
CF		0.406 (0.294)	0.393 (0.362)	0.807*** (0.239)	0.874*** (0.203)	1.125*** (0.250)
Constant		1.254*** (0.189)	0.964*** (0.238)	0.915*** (0.157)	0.757*** (0.137)	0.618*** (0.164)
Market power regression						
CF	0.0478 (0.0701)	0.0259 (0.0678)	0.119* (0.0646)	0.103* (0.0593)	0.124** (0.0531)	0.127** (0.0559)
Constant	0.132*** (0.0426)	0.113*** (0.0420)	0.0871** (0.0397)	0.0836** (0.0367)	0.0884** (0.0347)	0.0948** (0.0364)
Dividend yield regression						
CF			-0.0437** (0.0169)	-0.0598 (0.0364)	-0.0295 (0.0273)	-0.0205 (0.0317)
Constant			0.0467*** (0.0124)	0.0731*** (0.0235)	0.0420** (0.0185)	0.0719*** (0.0221)
Growth of fixed assets regression						
CF	-0.00438 (0.0770)	0.588*** (0.108)	0.152** (0.0689)	0.530*** (0.161)	0.0756*** (0.0254)	0.148*** (0.0247)
Constant	0.0131 (0.0474)	0.0983 (0.0667)	0.0178 (0.0460)	0.0785 (0.102)	0.101*** (0.0169)	0.00949 (0.0163)
Tax ratio regression						
CF	-0.0277 (0.0310)	-0.0490 (0.0364)	0.0196 (0.0747)	0.0136 (0.0656)	-0.0503 (0.0477)	-0.0264 (0.0402)
Constant	-0.0737 (0.0513)	-0.0746*** (0.0192)	-0.148*** (0.0233)	-0.181*** (0.0479)	-0.154*** (0.0437)	-0.171*** (0.0312)

Notes: *** p<.01, ** p<.05, * p<.1

Table 6a: Panel regression for RoA, RoE, and PER

Variables	(1) RoA	(2) RoE	(3) PER
Connected	-2.103** (0.888)	-2.264*** (0.856)	2.777*** (0.839)
case30	2.024** (0.914)	2.366*** (0.890)	-1.311 (0.811)
Construction	2.773*** (0.797)	-0.309 (0.797)	0.114 (0.757)
primary sector	-0.717 (1.663)	-0.538 (1.419)	0.650 (1.545)
wholesale	-0.546 (2.569)	-4.451** (2.103)	5.034* (2.672)
chemicals	0.944 (1.630)	-5.427*** (1.454)	0.819 (1.904)
Textiles	2.656*** (0.980)	1.311 (1.012)	0.326 (1.017)
Banks	3.585 (2.289)	4.148** (1.839)	-0.978 (1.588)
machinery	1.095 (3.345)	-2.386 (2.837)	-2.134 (3.375)
transport	16.27** (7.425)		-2.070 (2.632)
Food	2.199** (1.092)	0.777 (1.059)	1.335 (1.098)
2007.year	1.941* (1.129)	0.111 (1.144)	
2008.year	1.335 (1.119)	-0.227 (1.153)	3.689*** (0.982)
2009.year	0.557 (1.095)	-1.518 (1.090)	2.216** (0.965)
2010.year	-0.272 (1.098)	-1.209 (1.076)	2.500*** (0.954)
2011.year	-1.178 (1.106)	-1.005 (1.077)	3.215*** (0.960)
Constant	4.116*** (0.927)	11.16*** (0.952)	8.030*** (0.846)
Observations	566	339	368
R-squared	0.069	0.112	0.091

Notes: *** p<.01, ** p<.05, * p<.1

Table 6b: Yearly Regressions: RoA, RoE, and PER: Slope of CF and Constant

Year	2005	2006	2007	2008	2009	2010
ROA regression						
CF	1.020 (3.186)	1.140 (3.185)	2.020 (4.764)	-4.650** (2.306)	-4.310* (2.488)	-4.360 (3.957)
Constant	6.160*** (1.535)	6.090*** (1.871)	6.420*** (1.968)	8.080*** (2.864)	8.060*** (1.392)	6.480*** (1.673)
RoE regression						
CF	8.050* (4.180)	5.290 (8.284)	3.070 (6.769)	1.230 (7.974)	-1.290 (2.813)	-3.145 (5.094)
Constant	14.38*** (2.419)	14.61*** (5.102)	14.83*** (4.122)	18.18*** (4.859)	17.17*** (1.785)	12.88*** (3.432)
PER regression						
CF			1.290 (3.553)	11.49** (4.624)	2.892 (4.111)	3.168 (2.369)
Constant			9.813*** (2.329)	15.74*** (3.016)	13.41*** (2.864)	10.02*** (1.590)

Notes: *** p<.01, ** p<.05, * p<.1