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Net Working Capital and Firm Growth

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ABSTRACT

There are many empirical studies that have analyzed firms' growth; however, there has not been a direct examination of the relationship between working capital management and firm growth. Thus, this study examines the effect of the working capital level on the growth of firms from a sample of Jordanian firms; the data are unbalanced data for the period from 1999 to 2015. The study extends the literature on firm growth and finds evidence that investment in working capital has a positive effect on firm growth. The paper also shows that young and small firms grow more than mature and large firms. Moreover, we find that a high level of internal cash flow decreases a firm's growth. We also find a positive relationship between the market expectation and market-based financial performance and firm growth.

Keywords: Finance, Investment, Firm Growth, Net Working Capital
JEL Classifications: L25, L11

1. INTRODUCTION

This paper examines whether working capital investment affects firm growth. The seminal work of Gibrat in 1931, known as the law of proportionate effect (LPE), states that firm growth is independent from the initial firm size, and establishes that growth rate follows a random walk (Mansfield, 1962). Since Gibrat's publication, a large number of empirical studies have analyzed firm growth. Firm growth is considered an important factor for a firm because it may foster profitability (Lee, 2014). Thus, we can find a large number of studies that contribute to our knowledge and understanding of the factors that affect firm growth. However, growth needs investment; consequently, an investment decision is considered as one of the most important decisions in firm management. However, most working capital management (WCM) papers examine the relationship between working capital investment and firm performance, in which they ignore the growth rate in their analysis. Despite the importance of the link between growth and working capital investment decisions, it is surprising that there are very few studies that connect between the working capital investment decision and growth. To our knowledge, the closest work to this paper is that of Ferrando and Mulier (2013), which investigates the role of the trade credit channel on firms' growth; unlike this paper, they use the trade credit channel in their model, where they use the sum of accounts receivable and accounts payable but not the working capital level.

Working capital represents a large amount of a firm's investment; therefore, it requires significant attention from the firm's management. In this study, we examine the working capital decision using data from Jordanian firms, as no empirical research has examined the relationship between firm growth and working capital investment, where the control variables are size, age, debt, internal cash flow, and Tobin's Q. Aiming to fill this gap, this paper examines the impact of a firm's investment in working capital on the firm's growth. Thus, this study contributes significantly to the body of knowledge of firm growth and working capital studies. The remainder of this study is as follows. Section 2 presents the theoretical framework and literature reviews. Section 3 shows the variables selection, data, and the model. In Section 4 the descriptive statistics and empirical results are presented. The final section presents the conclusion and practical implication, and limitation.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEWS

2.1. Firm Growth

Firm growth is the core of economic dynamics; therefore we can see a large body of literature on the theories of firm growth that analyze the factors that affect a firm's growth rate. The growth literature starts with Gibrat's LPE, which demonstrates that "the probability of a given proportionate change in size during a specified period is the same for all firms in a given industry, regardless of their size at the beginning of the period" (Mansfield, 1962). In its simple form, the LPE demonstrates that the growth rate of a firm cannot be predicted from knowing only its size. Many have examined the LPE over the past decade, where mixed results were found for different countries. Particularly, most of the studies connected between growth and firm size and/or age. Some studies found that small firms have a higher and more variable growth rate that than for large firms (Mansfield, 1962; Mata, 1994; Bottazzi and Secchi, 2003). On other hand, some studies found that large firms have a higher growth rate (Ferrando and Mulier, 2013; Singh and Whittington, 1975). Since firm age is considered as one of the important factors of firm growth, Jovanovic (1982) proposed the passive-learning process, which demonstrates that the efficiency of a firm determines its growth. Thus, firms start working with low efficiency rates and subsequently discover more efficient ways of production. Therefore, young firms show higher growth rates than old firms. Furthermore, several studies have examined the impact of other firm characteristics on growth such as, innovation (Mowery, 1983; Roper, 1997; Coad and Rao, 2008), financial constraints (Audretsch and Elston, 2002; Carpenter and Petersen, 2002; Fagiolo and Luzzi, 2006), financial performance (Coad, 2007), and financial structure (Molinari et al., 2016). Growth can increase a firm's profitability, as found by Lee (2014), because it creates economies of scale, (Gupta, 1981), the experience curve effect, where the firm can decrease the production cost (Amit, 1986), and first-mover advantage (Lieberman and Montgomery, 1988). Steffens et al. (2009) discuss these issues in more detail.

2.2. The Relationship between Working Capital and Growth

Theoretically, Aktas et al. (2015) argue that effective WCM can increase sales and earnings to enhance a firm's growth. Johnson and Soenen (2003) show that one of the most important indicators of a firm's success is the WCM.

The literature shows different theoretical propositions to understand the impact of working capital on firm performance. The first part of working capital is the trade credit offered to customers. At the industry level, Fisman and Love (2003) test the impact of trade credit on the industry growth level in countries with poorly developed financial markets and conclude that the industries grow faster if they use trade credit. At the firm level, Petersen and Rajan (1997) empirically show that firms can use trade credit to increase market share and sales volume, where firms with a high profit margin can reach less creditworthy customers by using credit as a price discrimination tool. In addition, they show that firms with negative sales growth may stimulate sales by granting more trade credit to customers. Smith (1987) states that selling on credit can increase sales because it allows customers to verify the quality of goods purchased before paying; thus, offering trade credit could decrease the asymmetric information problem. Cheng and Pike (2003) and Pike et al. (2005) find support for the product quality argument; they find firms with a less established reputation-in particular, small and young firms - are offering more trade credit to customers. Offering trade credit can increase firm sales and growth because it may be considered as a selling expense, like advertising outlays (Nadiri, 1969). Trade credit can be used as a tool to finance customers in financial trouble. Thus, trade credit can reduce customers' financial frictions, with increased future growth and sales resulting from the long-term relationship with customers (Cuñat, 2007; Martínez-Sola et al., 2014). During low demand periods trade credit may encourage customers to buy (Emery, 1987). Molina and Preve (2009) find that those firms granting trade credit as they achieve their planned sales growth have a negative relationship between accounts receivable and lagged sales growth. Furthermore, offering trade credit to customers increases a firm's sales because it can be used to reduce the selling price for early payment customers, and it attracts less creditworthy customers by allowing them to postpone their payment (Cheng and Pike, 2003; Petersen and Rajan, 1997; Cheng and Pike, 2003).

The second part of working capital is inventory. Investment in inventory may enhance growth, where a higher inventory level can reduce ordering cost, reduce the risk of input price volatility (Blinder and Maccini, 1991), and reduce the risk of losing sales due to stock-out problems (Deloof, 2003; Aktas et al., 2015). Firms use a large work-in-process inventory to take advantage of economies of scale in production, which helps them to reduce the cost of production (Fazzari and Petersen, 1993). Hence, firms can implement a low price strategy to increase sales growth and market share. Also, increasing the inventory level can prevent production disruption (García-Teruel and Martínez-Solano, 2007). Furthermore, Hill et al. (2010) find that relaxed credit and inventory policies can increase sales growth.

Accounts payable represents the amount of the working capital financed by suppliers. However, the cost of accounts payable is relatively high compared to the cost of other sources of financing if the firm does not pay during the discount period. Smith (1987) shows that the cost of accounts payable is very high (e.g., 2/10 net 30, effective cost is 37.2% per annum). Several empirical studies find a negative relationship between firm performance and accounts payable as a source of finance (García-Teruel and Martínez-Solano, 2007; Yazdanfar and Öhman, 2016). Thus, managers may avoid using accounts payable to stimulate the firm's growth. In addition, a large body of literature shows the importance of WCM on firms' performance (Fazzari and Petersen, 1993; Hill et al., 2010; Baños-Caballero et al., 2014; Martínez-Sola et al., 2014; Aktas et al., 2015; Afrifa, 2016; Juan and Martínez-Solano, 2007). Thus, we expect a large amount of investment in net working capital (NWC) to enhance sales growth.

H_1: WCM is positively related to firm growth.

3. VARIABLES SELECTION, DATA, AND THE MODEL

3.1. Variables Selection

The dependent variable of this study is firm growth, which is defined as the percentage change of sales. The dependent variable GROWTH is measured by $(Sales_t - Sales_{t-1})/Sales_{t-1}$, which has usually been measured in the growth literature (Heshmati, 2001; Coad et al., 2011; Lee, 2014). The main independent variable, WCM, is defined as the NWC, which is measured by inventories plus receivables minus payables as a percentage of sales revenue (Hill et al., 2010; Aktas et al., 2015; Afrifa, 2016). In addition to the main independent variable, the following control variables are included because they have been found in previous studies to have an influence on firm growth. We control for company size, firm age, internal cash flow, external debt, and Tobin's Q.

We control for size and age to make sure that the growth rate is not driven by size and age, as proposed by the previous literature. The natural logarithm of revenue (SIZE) is used to measure firm size. According to Gibrat's LPE, the initial firm size should not affect the growth. However, empirical studies find an effect of firm size on growth. An inverse relationship between size and growth is supported by the findings of Goddard et al. (2004), Lee (2014), and Coluzzi et al. (2015); thus, smaller firms grow more than large firms. They argue that small firms have higher efficiency than large firms. On the other hand, large firms have the advantage of economies of scale which enable them to grow faster than small firms. Some studies find a positive effect of firm size on growth (e.g., Huynh and Petrunia, 2010).

H_2: There is a negative relationship between company size and growth.

According to Jovanovic's (1982) learning and selection effect proposition, young firms have higher growth rates than large firms. In addition, the literature argues that small firms have higher growth rates because they are in the earlier stage of life and can grow quickly. Some studies argue that firm age may offer a better explanation of firm growth, where young firms have more growth opportunities due to their ability to adopt changes in the market place (in particular see Evans, 1987a, 1987b; Dunne and Hughes, 1994; Das, 1995). Some studies find that young firms grow more because they can respond quickly to changes (Liu et al., 1999; Geroski and Gugler, 2004; Oliveira and Fortunato, 2006; Ferrando and Mulier, 2013; Coluzzi et al., 2015). Furthermore, some studies find that firm age has a nonmonotonic relationship with growth (Huynh and Petrunia, 2010). A few studies find a positive relationship between age and growth, for example Das (1995) who examines the relationship between age and growth rates for high-growth firms in a developing economy. The number of years since the firm was established is used as a proxy for age (AGE).

H_3: There is a negative relationship between company age and growth.

The pecking order theory (Myers, 1984) proposed that there is a financial hierarchy, where firms use internal funds before external funds to finance investment and growth. Hence, the internal cash flow constrains firms from achieving the target growth rates. Thus, firms with a higher internal cash flow are able to finance growth opportunities. Thus, several studies examine the sensitivity of investment to cash flow; they find that the constrained firms show higher investment-cash flow sensitivities than unconstrained firms. The positive relationship between cash flow and growth is found by Hutchinson and Xavier (2006), Coluzzi et al. (2015), and Quader (2017). However, higher cash levels may lead to under-performance of firms, that results from the agency cost problem (Jensen, 1986). In cases where cash flow is high, the conflict between managers and owners may arise, and managers may undertake unprofitable projects and use the firm's cash flow for their own interests rather than the owners' interests. In addition, financial constraints may not have significant influence on the growth rate, especially in firms that operate in developed financial systems. Angelini and Generale (2008) find that there is very little difference in the growth rate between financially constrained firms and financially unconstrained firms.

H_4: There is a negative relationship between internal cash flow and growth.

Investment in expansion needs financing. Hence, the availability of external financing is essential for a firm's growth. The influence of debt on growth is positive because firms use debt to invest in positive net present value projects. Molinari et al. (2016) and Ferrando and Mulier (2013) find firms that use external finance have higher growth opportunities. However, some studies find no evidence to support the relationship between debt and growth (Lopez-Garcia and Puente, 2012; Lee, 2014).The ratio of total debt to assets (DEBT) is used as a measure for access to external finance.

H_5: There is a positive relationship between debt and growth.

We add the Tobin's Q to control for investment opportunities. This proxy controls for market expectations regarding future growth opportunities (Fazzari et al., 1988). In addition, Tobin's Q may be used to measure the market-based measure of financial performance of a firm (Afrifa, 2016), where firms with a higher Tobin's Q ratio may be able to have better access to external finance debt and equity; hence, they may have better growth rates. Also, the relationship between performance and growth is due to the principle of "growth for the fitter," where firms compete with each other, and only firms with good financial performance are able to get a higher market share (Coad, 2007). Quader (2017) finds a positive relationship between Tobin's Q and growth rates. We use the ratio of market capitalisation plus book value of total assets minus book value of equity all divided by book value of total assets.

H_6: There is a positive relationship between Tobin's Q and growth.

3.2. Data

For the empirical analysis, this paper collects the data from the Osiris database, currently provided by Bureau Van Dijk Electronic Publishing. The study sample contains listed firms on the Amman

Stock Exchange for the period from 1999 to 2015. Our data contains all firms except financial sector firms (banks, insurance, real estate, and investment companies) because they have different accounting regulations. All variables were winsorized at the 1% and 99% level to eliminate the extreme values. Finally, we use in the estimations an unbalanced panel of 111 firms, where this allows entry and exit of firms; thus, the use of unbalanced panel data may partially be expected to be free from selection and survivor bias.

3.3. Regression Model Specification

As we use panel data in this study, the Hausman test is performed to decide whether to use a fixed effects or random effects model. It basically tests whether the unobservable heterogeneity (u_i) are correlated with the regressors in the model; the null hypothesis is they are not. We perform the Hausman (1978) test and the null hypothesis is rejected; the effects are considered to be fixed[1]. We also check the multicollinearity problem, and the correlation matrix shows that the correlation between the independent variables is low. In addition, we perform variance inflation factors and the results show no evidence for the multicollinearity problem. Also, we add year dummies to control for unobserved macroeconomic fluctuations and economic shocks. All of the independent variables are lagged by 1 year to eliminate any endogeneity problem that may arise because the NWC and firm growth may be simultaneously determined in equilibrium.

The following represents the baseline regression model of the relationship between NWC and firm growth:

$$GROWTH_{i,t} = \beta_0 + \beta_1 NWC_{i,t-1} + \beta_2 SIZE_{i,t-1} + \beta_3 AGE_{i,t-1} + \beta_4 CFLOW_{i,t-1} + \beta_5 DEBT_{i,t-1} + \beta_6 Q_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

We define all variables in Table 1. The dependent variable $GROWTH_{i,t}$ is the firm's growth rate and the independent variable is NWC, which measures the working capital ratio of firm i at time t. Given the results of other studies, we include control variables that have an impact on firm growth. These control variables are firm age (AGE), firm size (SIZE), internal cash (CFLOW), external debt (DEBT), and the market expectation of firm growth and performance, Tobin's Q (Q).

4. EMPIRICAL RESULTS

4.1. Descriptive Statistics

Table 2 shows the descriptive statistics of the variables included in the model. GROWTH is, on average, 16.6%, while the median is 0.032. The average ratio of NWC is 31.1%, which is higher than the results of Afrifa (2016), Aktas et al. (2015), and Hill et al. (2010). These results are not surprising since in emerging markets, such as in Jordan, firms may have difficulty in collecting receivables and selling inventory quickly. Thus, approximately JOD 0.31 of each Dinar in sales is tied up in NWC. The average lagged SIZE is 8.343%, with median 8.729%. Lagged CFLOW has an average value equal to 0.041, with median 0.034. The mean lagged value of DEBT is 0.082, and median 0.039. The mean lagged Q ratio is 1.36, and median 1.016. AGE has an average ratio equal to 2.71, and median 2.77.

4.2. Correlation Analysis

Table 3 shows the correlation matrix for the variables in the paper. The correlations between the variables are closely aligned to the study expectations; there is a positive relationship between GROWTH and lagged CFLOW, Tobin's Q and SIZE, and GROWTH is negatively related to AGE, DEBT, and NWC. Although most of the independent variables are correlated, none of the coefficients are large enough to detect a multicollinearity problem.

4.3. The Relationship between NWC and Growth

Table 4 reports results of the estimation models investigating the relationship between WCM and company growth. Model 1 in Table 4 analyses the relationship between working capital and company growth; in agreement with H_1, the coefficient of NWC is statistically significant ($\beta = 0.33$; $P < 0.01$). The results support the expectation that firms use NWC to manage their growth. In other words, firms with a large amount of NWC can increase their future growth. It has been argued that firms with very high NWC would have an idle amount of accounts receivable

Table 1: Variables measurement

Variables	Acronym	Measurement
Company growth rate	GROWTH	$(Sales_t - Sales_{t-1})/Sales_{t-1}$
NWC[2]	NWC	(Accounts receivable/sales) + (inventory/sales) − (accounts payable/sales)
Firm size	SIZE	The natural log of the firm's revenue at the end of the year
Firm age	AGE	The number of years since the firm was established is used as a proxy for age
Internal cash flow	CFLOW	Net operating income plus depreciation divided by total assets at the end of the financial year
External finance	DEBT	Short-and long-term debt divided by total assets
Tobin's Q	Q	Market capitalization plus book value of total assets minus book value of equity all divided by book value of total assets

NWC: Net working capital

Table 2: Descriptive statistics

Variable	Mean±SD	Median	10%	90%
GROWTH	0.166±0.883	0.032	−0.494	0.679
NWC	0.311±0.314	0.283	−0.006	0.766
SIZE	8.343±2.352	8.729	5.257	10.82
AGE	2.711±0.809	2.772	1.609	3.737
CFLOW	0.041±0.101	0.034	−0.087	0.178
DEBT	0.082±0.107	0.039	0	0.221
Tobin's Q	1.36±0.649	1.016	0.484	2.666
Number of firms	111			

SD: Standard deviation

1 The results from the random effects model are qualitatively similar.

Table 3: The correlation matrix between variables

Variables	GROWTH	NWC	SIZE	AGE	CFLOW	DEBT	Tobin's Q
GROWTH	1.0000						
NWC	−0.0289	1.0000					
Significant	0.308						
SIZE	0.0369	−0.113**	1.0000				
Significant	0.103	0.004					
AGE	−0.115**	0.080**	0.320**	1.0000			
Significant	0.000	0.004*	0.000				
CFLOW	0.076**	−0.076	0.352**	0.140	1.0000		
Significant	0.000	0.007	0.000	0.334			
DEBT	−0.023	−0.201	−0.031	0.027	−0.142**	1.0000	
Significant	0.422	0.000	0.275	0.334	0.000		
Tobin's Q	0.011	−0.111**	0.214**	0.109**	0.356**	−0.0294	1.0000
Significant	0.651	0.000	0.000	0.000	0.000	0.337	
N	111	111	111	111	111	111	111

*. **Coefficients are significant at the 0.05 and 0.01 level respectively. NWC: Net working capital

Table 4: NWC and firm growth

Dependent variables: GROWTH					
Model	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Constant	−0.048	−0.052	2.42***	1.87***	1.81***
SE	0.031	0.032	0.592	0.341	0.362
NWC	0.332***	0.291***	0.306***	0.393***	0.345***
SE	0.11	0.111	0.096	0.086	0.083
NWC^2		0.090			0.143
SE		0.113			0.132
SIZE			−0.212***	−0.169***	−0.163***
SE			0.065	0.044	0.044
AGE			−0.163***	−0.168**	−0.169**
SE			0.06	0.073	0.073
CFLOW				−0.478***	−0.505***
SE				0.185	0.192
DEBT				−0.225	−0.204
SE				0.301	0.301
Tobin's Q				0.150***	0.151***
SE				0.036	0.036
Number of firms	111				
Number of observations	1134				

SE is robust standard errors corrected using White's heteroscedasticity standard errors. ***. **and * denote significance at 0.01, 0.05, and 0.1 respectively. NWC: Net working capital

and inventory. Therefore, it may slow a firm's growth; thus, the convex relationship may exist. Hence, to examine the non-linear relationship between NWC and GROWTH we include the square of NWC to the model. Model 2 shows the result from including NWC^2 to the model. The results show no impact of NWC^2 on the firm growth; thus, we conclude that higher NWC is not negatively affecting firm growth and a concave relationship between working capital investment and company growth does not exist. In Model 3 we control for SIZE and AGE. In line with H_2, the SIZE coefficient is negative and statistically significant at a conventional level, indicating that small firms are growing more than large firms. Furthermore, consistent with H_3, the impact of AGE is negative and statistically significant at 1%; thus, young firms are growing more than mature firms because they may respond more to market changes. Moreover, we have no evidence to support that external debt has a statistical influence on firm growth; thus, H_5 is not supported. Internal cash flow is found to relate negatively with growth. H_4 is, thus, supported, indicating that high levels of cash flow may negatively affect the firm growth. Finally, in line with H_6, the coefficient of Tobin's Q is positive and statistically significant at 1%.

In sum, the regression results confirm that firm growth is affected by working capital, firm age, size, internal cash flow, and market expectations of growth or market-based measures of performance. The positive impact of working capital investment on firms' growth is consistent with many papers that propose an investment in working capital positively affects firm performance.

The results of the firm size effect reject Gibrat's LPE; the results show that there is a negative effect of firm size on firm growth, and, thus, small firms grow more than large firms, which supports the findings of Goddard et al. (2004), Lee (2014), and Coluzzi et al. (2015). The AGE coefficient is negative; thus, small firms grow faster than mature firms. This relationship between growth and age supports the passive-learning process demonstrated by Jovanovic (1982); thus, young firms gain information through production to increase their productivity. The other explanation is that small firms react more quickly to market changes, a result consistent with the findings of Oliveira and Fortunato (2006), Huynh and Petrunia (2010), Fagiolo and Luzzi (2006), and Molinari et al. (2016).The negative effect of the age coefficient contradicts the learning-by-doing argument, which proposed that older firms take

advantage of their past experience to learn, and hence increase their growth in the future. The results find no support that the debt ratio can affect firm growth; thus, firms need not depend on costly external finance to enhance growth. This result is not consistent with the findings of Heshmati (2001), Molinari et al. (2016), and Ferrando and Mulier (2013), but is consistent with Lopez-Garcia and Puente (2012) and Lee (2014).

The coefficient of CFLOW is negative and statistically significant at a conventional level. The negative effect of internal cash flow on firm growth shows that firms can easily acquire funds from external sources to finance growth; this indicates that firms are not liquidity constrained. In addition, they may consider a high level of internal cash flow as an unproductive asset and firms may lose the opportunity of investing in more productive assets such as working capital and non-current assets. The results are consistent with Angelini and Generale (2008) but not consistent with findings of Hutchinson and Xavier (2006) and Quader (2017).

The positive effect of Tobin's Q is in line with the findings of Quader (2017). The results confirm that the market can anticipate firms' growth rates. In addition, a positive relationship indicates that Tobin's ratio may reflect good performance by firms, which helps the firms to access external finance; thus, firms can finance their growth. This also confirms the "growth for the fitter" principle, where firms with good financial performance are better able to grow, which is consistent with the findings of Coad (2007).

5. CONCLUSIONS

Working capital is the difference between buying inventory and receiving cash from customers; it represents a large amount of firms' investment. Therefore, firms consider investment in and management of working capital as one of the key components of firm growth. Following this line of argument, this study attempts to find out whether the working capital level can explain firm growth using a sample of Jordanian listed companies from 1999 to 2015.

A salient result of this study is that investment in working capital has a positive impact on firm growth. Thus, firms need to invest more in working capital to achieve growth. The results also show that young firms have higher growth opportunities, and the same result is also found for small firms. The study finds that internal cash flow has a negative impact on firm growth. The results show a positive relationship between market-based financial performance and firm growth whereas financial debt has no effect on firm growth. Overall, the results show that investment in working capital by younger and smaller firms with a good market expectation of performance and with a low amount of cash flow are more likely to achieve higher growth rates.

Most of the previous studies connect between WCM and firm performance as measured by profitability and value. The importance of the results of this study comes from examining the effect of WCM on firm growth. This relationship is theoretically proposed by many papers but not empirically examined. This study contributes to our knowledge on how WCM affects firm growth. Whilst researchers such as Deloof (2003), Baños-Caballero et al. (2014), Abuzayed (2012), Aktas et al. (2015), and Afrifa (2016) have examined the impact of WCM on firm performance as measured by profitability and value, other studies have examined the factors that affect firm growth, such as Evans (1987b), Carpenter and Petersen (2002), Coad (2007), Coad et al. (2011), and Molinari et al. (2016). This study extends the previous literature and links between WCM and firm growth.

The results of this study have straightforward practical and policy implications. The results indicate that firms aiming to achieve high growth rates invest more in working capital. Thus, firms should consider working capital investment in their financial planning strategy. In addition, national economic policy should focus economic reform toward small and young firms, as these firms are growing the most and can generate more jobs. The main limitation of this study is that it focuses on listed firms; hence, we cannot generalise the results to unlisted firms. Future work should expand the sample and consider unlisted firms.

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