Chapter 7

Liquidity Constraints and Small Firms' Growth: The Case of Southern Italy

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7.1   Introduction

There is general agreement on the difference, in terms of efficiency, between small firms in southern and northern Italy (see Prosperetti and Varetto, 1991; Giannola and Sarno, 1996; Giannola, Papagni and Sarno, 1998; Sarno, 1999). As far as technical efficiency is concerned (that is the ability to generate output from a given amount of factors of production) there appears, over the years, a persistent, huge differential (around 30 per cent) in favour of Northern firms. These findings (Giannola and Sarno, 1996; Giannola, Sarno and Papagni, 1998) show that Southern firms are not in a position to exploit economies of scale as northern firms do. The fact that firms' size in the *Mezzogiorno*, for different size classes, is systematically smaller than in the rest of Italy, is a particular feature that seems to have major consequences.

When the analysis shifts from technical to economic efficiency (i.e., the ability to combine the factors of production so as to equalize the weighted marginal productivity of factors), the gap between southern and northern firms in the level of production costs is dramatically reduced (ranging from 6 to 10 per cent). These results suggest that the North-South gap is not so much related to a specific inefficiency, but to the smaller size of southern firms that does not allow them to profit from returns to scale to the same extent.

A possible conclusion (with relevant policy implications) is that the root of many problems of southern firms lies in the obstacles that prevent them from growing to reach an adequate operating size. A related implication is that the southern industrial structure, due to its size characteristics, is more easily affected by monetary policy and the economic cycle (Gertler and Gilchrist, 1991; 1993)

The difficulties faced by southern firms become evident if we look at the evolution of the Italian manufacturing industry during the 1990s. For this purpose, we can proceed by considering a sample of firms which is representative of the entire population from a sectoral, dimensional and geographical standpoint. During the 1990s there was an overall decline in average firm size in Italian across all size classes. This is particularly marked for southern firms, in which firms' size in 1990 was already significantly below average; by 1994 this character was considerably

accentuated and was confirmed in 1997; by contrast, average northern Italian firm size showed a major increase in 1997.

Moreover, the less pronounced and less persistent decline of the average size did not prevent Northern firms from expanding sales in the period in hand; this is due to the rapid growth of exports that followed the 1992 devaluation of the Italian lira. In the same period, in the *Mezzogiorno*, sales of local firms show a persistent and significant decline. As a consequence, the dynamics of the productivity of labour was negative (or stagnant) in the South, while it steadily grew in the rest of the country.

Southern firms, while experiencing at the end of the period some significant progress in penetrating foreign markets, faced increased competition on the domestic market due to the contraction in aggregate demand, severely affected by the restrictive stance of the macroeconomic policy.

All in all, these data illustrate the weakness (if not the worsening) of the competitive position of manufacturing firms in the South.

7.2   Productive and Financial Performance, the Pace of Capital Accumulation and the Emergence of Financial Constraints

The problems of southern firms are clearly expressed by their relative performance (tables 1a and 1b; notice that in the following analysis all the data are drawn from Medio Credito Centrale, 1999). Profitability ratios, such as ROE and ROI, show a negative evolution after 1992. This evolution has both a real and a financial explanation. We notice the relative decline in factor productivity that accompanies the reduction in the operative scale of the firms. This trend can be seen (in general and especially by firm size) considering several ratios like the *per capita value added; fixed assets per employee, sales/fixed assets* ratios. At the same time, there is a sharp increase in financial costs or, in general, a problematic adjustment of the ''financial framework'' that emerges from the inspection of other ratios like *total financial debt/sales; the burden of debt/value added* and *burden of debt/ gross operating margin*. Also in this case the firms with fewer than 50 employees show the most problematic performance.

Looking at the real factors, both northern and southern firms show a decline in the value added as a share of sales and an increase in the *labour cost/value added* ratio.

The labour cost per employee is stable in the South, while it is slightly increasing for northern firms. Therefore the increasing weight of the labour cost per unit of value added recorded in the South is due to the inadequate dynamics of value added as well as to the decline in sales. These compound 'scale effects' negatively affect the gross margin of these firms, which suffers a further reduction due to the increased financial costs. For this last aspect – which will be analyzed in greater detail below – it must be said that increasing costs go hand-in-hand with a recovery of investment activity. Therefore the worsening of the financial situation

might be described as temporary, inasmuch as it is the necessary condition for implementing a strategy aimed to recover competitiveness. However, it must also be said that – *per se* – the decline in sales and size is a powerful factor in determining, *ceteris paribus*, an increasing financial burden for southern firms. In this case the concern of maintaining the financial equilibrium may actually offset crucial investment processes (and this seems to apply particularly to smaller firms).

Table 7.1a   Performance and structural ratios (median values) [b]

	MEZZOGIORNO				
	1992	1994	1995	1996	1997
ROE	4.2	4.2	4.4	4.9	4.8
ROI	9.6	7.8	9.4	9.8	8.0
OF/DFT	17.8	13.8	14.1	13.2	11.3
OF/MOL	41.8	29.7	37.9	36.4	31.6
OF/VA	16.7	12.1	14.2	13.6	11.7
VA/FATT	32.6	32.8	25,9	26.5	27,1
W/VA	63.7	66.6	59.2	61.7	63.7
VA/ADD	57.0	52.9	67.7	64.8	65.8
FATT/IMM	379.6	368.	408.2	394.1	394.4
IMM/ADD	53.2	49.6	67.8	65.1	66,5
W/ADD	35,9	34,2	39.7	39.6	41,9
DFT/FAT	27.7	22.8	18,6	19.7	21.6

	CENTER NORTH				
	1992	1994	1995	1996	1997
ROE	5.7	13.0	17.4	13.8	12,2
ROI	11.1	13.7	19.0	16.3	13,4
OF/DFT	18.2	13.8	15.6	13.7	10.9
OF/MOL	45.6	28.4	29.0	30.7	27.7
OF/VA	14.2	9.9	11.4	10.6	9,1
VA/FATT	33.3	33.6	27.8	28.4	28,4
W/VA	69.4	66.6	59.2	64,1	66,2
VA/ADD	67.1	72.9	86.6	79,0	81,0
FATT/IMM	553.	606.4	678.4	648,7	651.0
IMM/ADD	37.1	38.1	7.1	45,0	47.8
W/ADD	46.4	48.5	50.6	50,4	52.9
DFT/FAT	23.2	18.3	15.0	13,7	15.0

[b] See Legenda

Source: Mediocredito Centrale

**Table 7.1b   Performance and structural ratios. by dimensional classes
              (median values) [b]**

| | *MEZZOGIORNO* | | | | | | | | |
| | < 50 | | | 51-250 | | | 251-500 | | |
	1992	1995	1997	1992	1995	1997	1992	1995	1997
ROE	5.7	3.9	4.7	0.7	4.6	4.9	0.4	7.4	6.3
ROI	11.2	10.1	8.4	5.5	8.5	6.8	5.1	7.3	6,6
VA/FATT	33.5	23.4	25.9	33,2	28.4	29.4	31,2	33,7	27.1
MOL/VA	35.2	44.5	38.6	32.4	35,4	31,4	28.5	40.0	31.0
OF/VA	14.8	15.9	12.3	15,7	13.2	10.7	11.3	16.0	10.6
OF/MOL	32.4	39.7	33.3	47,0	34.0	30.7	42.3	54.4	30.4
DFT/FATT	14.9	17.3	20.1	32.1	20,5	22.1	32.1	32.7	31.3
VA/ADD	47.8	71.9	65.5	57.7	61.4	65.7	74.9	67.7	68.5
W/ADD	31.0	38.7	40.3	38.0	39.7	45.5	43.2	44.4	52.4

| | *CENTER NORTH* | | | | | | | | |
| | < 50 | | | 51-250 | | | 251-500 | | |
	1992	1995	1997	1992	1995	1997	1992	1995	1997
ROE	10.2	18.7	13.0	6.0	16.3	11.2	4.0	16.3	12.0
ROI	18.4	23.6	16.1	11.4	16.4	10.6	7.9	12.7	9.9
VA/FATT	34.2	24.4	26.2	35.5	31.7	31,6	33.9	31.7	31.2
MOL/VA	35.6	44.2	34.7	30.8	37.3	32.6	30.9	37.4	33.6
OF/VA	12.3	12.2	9,5	12.7	10.7	8.6	14.6	10.8	8.3
OF/MOL	35.4	30.1	28.9	40,0	26.8	26,7	47.9	31.8	26.4
DFT/FATT	12.0	10.4	8.3	24.2	20.3	23.2	32.0	23.6	25.5
VA/ADD	61.6	89.2	77.0	70.7	83.6	84.5	74.2	89.9	91.5
W/ADD	41.1	48.5	49.8	49.1	52.5	56.3	50.3	56.7	61.8

[b] See Legenda

Source: Mediocredito Centrale

7.3   Financing Investments

Faced by increasing difficulties, southern firms showed an interesting reaction
which led to a recovery of the pace of investment in the last three years analysed
(1995-97) (Table 7.2). 57 per cent of these investments are in innovative
equipment (against 36 per cent in the North).

Table 7.2   Fixed investments (per cent on sales)

	SOUTH			NORTH		
	1992	1993	1994	1992	1993	1994
< 50 employees	3,3	2,8	2,9	4,0	12,2	4,9
51-250 employees	5,6	6,5	6,2	3,5	4,3	2,7
251-500 employees	4,2	4,3	2,7	4,3	3,6	3,6
TOTAL	5.9	5,4	4,8	3,9	5,1	3,2
	1995	1996	1997	1995	1996	1997
< 50 employees	9.0	5.9	9.4	10.8	11,2	11.1
51-250 employees	4.6	5.1	6,9	4.8	4,6	4.6
251-500 employees	4.5	5.4	6.2	4,5	4.0	3.8
TOTAL	5.8	5,4	7.4	6.2	6.0	6.0

Source: Mediocredito Centrale

It is worth pointing out two key aspects in this process. While in the period 1992–94, capital accumulation is mainly concentrated in the firms belonging to the 51–250 class of employees, and is particularly weak for firms with fewer than 51 employees, in the last period (1995–97) small firms show significant activism nationwide. As far as southern firms are concerned, both innovation and investment are concentrated in non-exporting firms, i.e., those that have been most affected by increasing competition in the domestic market.

In terms of the source of finance for investments, Table 7.3 gives such information as well as (last row) information on the share of firms rationed on the credit market. Considering all firms, we see that in the 1992–1994 period, internal contribution, via retained profits, and additional equity capital are far less substantial sources of finance in the South (46 per cent) than in the North (64 per cent). Public subsidies (capital grants) and subsidized medium long term loans, instead, account for 18 and 21 per cent respectively in the South, against the 2 and 12 per cent in the North. On the contrary, non-subsidized loans (ordinary credit) contribute much less (5 per cent against 11 per cent) as well as other financial instruments like leasing (5 per cent against 8 per cent).

Interestingly enough, these general characteristics do not apply in that period to southern firms with fewer than 51 employees, or – for relevant aspects – to the class of 51-250 employees. In fact, for smaller firms the main source of finance is represented by self-finance (54 per cent), quite unlike the situation in the North (26 per cent). As regards the contribution of equity capital, we end up with 56 per cent in the South and 27 per cent in the North. In addition, subsidized medium long terms loans are a more substantial source of finance for northern firms up to 250 employees.[1] As for the percentage of rationed firms, this is at least double in the South for each size class.

Table 7.3   Sources of company finance (per cent)

	< 50		51-250		251-500	
	SOUTH	*NORTH*	*SOUTH*	*NORTH*	*SOUTH*	*NORTH*
Venture capital	1.8	0.7	0.3	2.2	0.2	2.7
Self-financing	53.7	25.8	47.1	57.3	45.8	63.7
Ordinary loans	1.2	3.8	3.5	10.0	2.2	12.9
Special loans	5.3	7.6	18.5	19.2	28.3	11.1
Public subsidies	19.1	0.8	20.8	2.0	16.8	2.6
Leasing	18.2	60.3	6.7	7.1	5.3	2.8
Tax concessions	0.5	0.9	1.6	1.5	1.3	0.7
Other	0.4	0.1	1.5	0.7	0.1	3.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Rationed firms (%)	10.5	5.4	10.6	4.3	7.2	4.9

	< 50		51-250		251-500	
	SOUTH	NORTH	SOUTH	NORTH	SOUTH	NORTH
Venture capital	1.0	0.4	1.7	2.6	11.1	1.6
Self-financing	21.3	67.3	53.3	41.3	51.3	58.2
Ordinary loans	5.3	12.1	7.5	19.1	5.9	22.0
Special loans	4.9	4.1	5.0	7.8	11.1	3.7
Public subsidies	12.2	1.5	13.9	4.7	18.2	1.4
Leasing	51.2	9.3	14.6	7.8	1.6	2.1
Other	0.1	2.0	0.4	1.9	0.5	3.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Rationed firms (%)	10.5	5.4	10.6	4.3	7.2	4.9

In the 1995–1997 period smaller firms are most dynamic (especially in the North) in terms of investment. The share of equity and retained profits is confirmed as the main source of finance in the North especially for smaller firms. In the South, this source is confirmed as the most important only for firms with over 50 employees; the second most important source of finance consists of grants, fiscal and interest incentives. Smaller firms are not in a position to meet the need to finance a larger investment by retained profits. This source is much less important than in the past in this period and more limited in absolute terms. southern firms with under 51 employees find their main source of finance in instruments – like leasing – that at the same time do not dramatically affect their liquidity position and do not entail a need for an 'excessive' increase in the amount of bank credit. In this respect the marginal role of ordinary credit in the South is confirmed in general and especially for smaller firms; the opposite occurs in the rest of the country.

7.4 Characteristics of the Financial Constraint

This evidence suggests that binding financial constraints may considerably affect investment performance of southern firms with fewer than 51 employees. In particular, further inspection of the data seems to support the idea that such firms face an atypical liquidity constraint, which limits an adequate flow of working capital and hence expansion even in a profitable business environment (as in the period from 1995–1997). Vice versa, in the next size class (51-250 employees) the financial constraint takes the more traditional form of a difficulty in funding fixed capital investment. In general, for all firms, the persistence of a more severe financial constraint in the *Mezzogiorno* than in the rest of Italy is confirmed.

Table 7.1 shows that the debt/sales ratio is substantially higher in the South and is increasing markedly in small firms. The same is true for the ratio between financial costs (interest costs) and gross operating margin. These results are connected to the pronounced restriction of the operative scale of southern firms (Iuzzolino, 1999). In the same period the share of bank loans on total sales is falling. Within the total of bank loans, the share of short term loans is also falling, at a rate that is particularly evident in southern Italy.

Taking into account the size of firms (Table 7.5), the increase in the debt burden affects mainly the first two size classes. Small firms try with some success to reduce the share of bank loans on sales, but they are much less successful in reducing short term bank debt. For medium sized firms, instead, the growth of the financial debt is accompanied by a more stable share of bank loans on total debt and by a substantial reduction of its short term component. But the worst signs for small southern firms are represented by the explosion of two crucial indicators such as *total financial debt / sales,* and *burden of debt / value added* ratios. For northern firms the increase in total debt is much less pronounced; the share of bank debt remains almost stable and all major financial ratios are under control.

The common tendency in the South is debt restructuring which – especially for small and medium sized firms - aims to reduce financial needs arising from the production process: a target that small firms seem to achieve with increasing difficulty and that – as will be argued in the next section – sets the pace of their activity. To confirm this conjecture, this trend is accompanied by a greater attention of small southern firms to their liquidity position (Table 7.4 shows how the *current assets / sales* and *current assets / current liabilities* ratios are, in the *Mezzogiorno*, higher than in the North).

This suggests that, in the period considered, the difficulty coping with increasing competition compels Southern firms to control their financial equilibrium. Greater concern with company liquidity is combined with an effort to reduce dependence on the banking system.

The adjustment of the debt structure, that follows the decline of the operative scale, delivers some short term results in tackling the growth of the financial burden. However, it poses further constraints on firms' ability to grow and to

Table 7.4   Debt and liquidity ratios[b]

	SOUTH				
	1992	1994	1995	1996	1997
DFT/CAP	79.4	57.0	65.3	63.0	61.6
DFT/FATT	27.7	22.8	18.6	19.7	21.6
BNCB/BNC	92.3	95.1	85.8	77.1	80.6
OF/DFT	20.3	17.5	15.4	15,4	14,0
LIQUIDC	124.9	121.5	124.9	123.8	127.3
OF/VA	16.7	12.1	14.2	13.6	11.7
ATTC/FATT	70.5	70.1	66.1	65.7	67,5

	NORTH				
	1992	1994	1995	1996	1997
DFT/CAP	112.9	91.7	87.7	68.4	74.1
DFT/FATT	23.2	18.3	15.0	13.7	15.0
BNCB/BNC	91.4	94.6	90.9	89.2	86.8
OF/DFT	21.4	16.0	17.3	15.6	12.6
LIQUIDC	122.7	120.7	118.8	117.7	117.7
OF/VA	14.2	9.9	11.4	10.6	9.1
ATTC/FATT	61.2	61.0	55.9	54.7	57.3

[b] See following LEGENDA

Source: Mediocredito Centrale data

pursue a suitable investment policy. In this perspective, decline in competitiveness and financial fragility become strictly interconnected and self-maintaining phenomena. Moreover, there is also a negative effect on the perceived riskiness of the firms, with the result of making the flow of short term funds more uncertain, and making rationing of long term finance more likely to happen. Hence, firms – especially small ones – are increasingly concerned with liquidity constraints and are more compelled (often unsuccessfully) to resort to retained profits to meet their financial needs.

7.5   The Financial-Liquidity Constraint; a Simple Model and Some Macroeconomic Implications

It is now possible to propose a very simple framework which suggests how decisive the liquidity constraint may be in directly conditioning firms' production decisions as well as – in turn – the process of investment.

Table 7.5   Debt and liquidity ratios for size classes[b]

	SOUTH								
	< 50			51-250			251-500		
	1990	1992	1994	1990	1992	1994	1990	1992	1994
OF/MOL	42,8	50,0	56,6	18,7	21,6	17,9	10,7	21,4	8,7
DFT/CAP	87,1	93,8	101,9	98,1	94,3	100,4	83,7	138,4	108,7
DFT/FATT	27,0	27,7	32,0	34,4	38,5	39,2	27,2	40,0	37,2
BNC/DFT	94,7	94,7	82,6	93,6	81,8	79,9	86,0	82,1	84,9
BNCB/BNC	97,1	97,8	93,4	94,2	85,9	82,9	97,6	69,6	81,3
LIQUIDC	1,3	1,3	1,2	1,4	1,4	1,3	1,9	1,9	1,7
ATTC/FATT	60,3	64,7	69,2	69,4	80,6	75,0	85,8	86,8	88,8
GESTFIN	23,9	10,5	−16,9	23,9	−10,0	-83,1	31,3	5,0	8,4

	NORTH								
	< 50			51-250			251-500		
	1990	1992	1994	1990	1992	1994	1990	1992	1994
OF/MOL	36,6	49,9	32,5	40,3	55,9	36,6	43,2	60,7	40,8
DFT/CAP	108,7	123,9	124,9	118,9	114,9	116,1	115,6	131,0	110,7
DFT/FATT	21,5	26,6	25,5	27,5	29,0	26,7	26,4	34,7	28,7
BNC/DFT	93,7	88,2	92,4	87,1	85,1	84,6	83,8	74,9	79,4
BNCB/BNC	98,9	94,2	92,4	90,8	90,8	90,0	85,5	80,4	83,4
LIQUIDC	1,3	1,2	1,3	1,3	1,2	1,2	1,2	1,1	1,2
ATTC/FATT	58,1	61,1	60,7	64,7	66,3	63,1	60,3	73,9	72,4
GESTFIN	23,4	4,2	20,9	20,3	−1,1	21,5	25,9	-8,6	5,2

[b] See following LEGENDA

Source: Elaborations on Mediocredito Centrale's data

Let us assume that a firm resorts to debt, *d*, to finance its activity, *y*, according to a fixed proportion α. Let δ be the planned rate of growth of production. The demand for debt per unit of time will be:

$$\Delta d = \delta d_{-1} = \alpha \delta y_{-1} \qquad (5.1)$$

Assume that the supply of debt follows the rule:

$$\Delta d = \delta d_{-1} - f \qquad (5.2)$$

where f represents a function that takes into account the risk level of the firm. For the sake of simplicity, suppose f is a function of the total amount of a firm's debt d and of the 'own – capital' E (equity) that plays the role of a sort of collateral in order to moderate the firm's risk. We therefore define μE as a *bonus* whose value is a direct proportion of the level of firms' capital E and (through the value of $0 < \mu < 1$ exogenously determined) inversely related to the general conditions of risk (of the sector, the environment, etc.). The specific risk of the firm is relate to d and to the parameter γ. The structure of f is therefore defined by

$$f = -\mu E + \gamma d \tag{5.3}$$

This expression defines a critical level of d as a function of μ and γ and E, $d^* = \mu E / \gamma$, for which $f = 0$. For $d \leq \mu E / \gamma$, then, $f \leq 0$ and the supply of loans is equal to, or greater than the demand. In this case the firm does not face a liquidity constraint; the planned growth of production is compatible with the available financial resources. In the opposite case (when $d > d^*$), the availability of external resources falls progressively as d increases. In this case the available resources are less than the amount needed to finance the planned growth.

Substituting (5.3) in (5.2) we have a first order difference equation:

$$d - \left(\frac{1+\delta}{1+\gamma}\right) d_{-1} = \frac{\mu E}{1+\gamma} \tag{5.4}$$

For given initial conditions and with $\gamma \neq \delta$, the solution will be:

$$d_t = \left(\frac{d_0 - \mu E}{\gamma - \delta}\right)\left(\frac{1+\delta}{1+\gamma}\right)^t + \frac{\mu E}{\gamma - \delta}$$

The debt grows over time in proportion that depends on $h = (1 + \delta)/(1 + \gamma)$. When $\delta < \gamma$, $h < 1$, d converges to $\mu E /(\gamma - \delta)$; credit rationing prevails. The greater the difference between δ and γ, the faster is the convergence. If $\delta > \gamma$; $h > 1$; the liquidity constraint may or may not limit the desired growth according to the size of firms' capital E. When $E > d_0 [(1 + \delta)^t (1 + \gamma)^t - 1]/(\gamma - \delta)/\mu$ there is no constraint in financing the planned growth of production.

Since we assumed a constant relationship between d and y, the growth profile of y coincides with that of d. When $\delta < \gamma$, y converges to the equilibrium value $\mu E / \alpha(\gamma - \delta)$ which is inversely related to α which, in turn, represents the measure of the dependence of firm production from external finance.

7.6   Conclusions

In my opinion this simple model sheds some light on the nature of the financial constraint which is particularly relevant to the idiosyncratic position of southern

Italian firms. But, apart from the Italian *Mezzogiorno*, this simple framework may apply to a more general perspective (Whited, 1992).

The idea is that, rather than the lack of finance for investment projects (the main interest of the 'rationing literature' (Fazzari, Hubbard and Petersen, 1980; Bond, Meghir, 1994) it is worth investigating a hierarchical and – in my opinion – more severe constraint. This deals with the delicate phase represented by the opening of the monetary circuit. And, since it negatively affects the possibility to provide the necessary working capital, it also affects current production, firms' size and – in perspective – investment decisions.

As for the Italian *Mezzogiorno*, the microstructural features outlined above lead to some major macroeconomic implications. The fact that the effective *d* values are conditioned by a liquidity constraint, combined with the assumed relationship between debt and the level of sales, indicates that, at the aggregate level, national income will also be constrained. More specifically, even if the liquidity constraint does not affect the rate of growth, it will certainly affect the level of the national product.

APPENDIX

LEGENDA: RATIOS

OF/DFT	Burden of debt/Total financial debt
OF/MOL	Burden of debt/Gross operating margin
OF/VA	Burden of debt/Value added
VA/FATT	Value added/Sales
VA/ADD	Value added/Employees
W/VA	Labour cost/Employees
MOL/VA	Gross operating margin/Value added
W/ADD	Labour cost/Employees
IMM/ADD	Fixed assets/Employees
ROI	Return on investment
ROE	Return on equity
DFT/CAP	Total financial debt/Equity
DFT/FATT	Total financial debt/Sales
BNCB/BNC	Short-term bank debt/Total bank debt
LIQUIDIC	Current assets/Current liabilities
GESTFIN	Net income/Gross operating income

Note

1   In the period under consideration, capital grants are still reserved by law almost
    exclusively for the realization of investment projects in southern Italian regions. Since
    1994, under the new regional policy regime (Law 488), investment projects realised in
    several northern areas are also eligible for capital grants.

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