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Economic Research Note

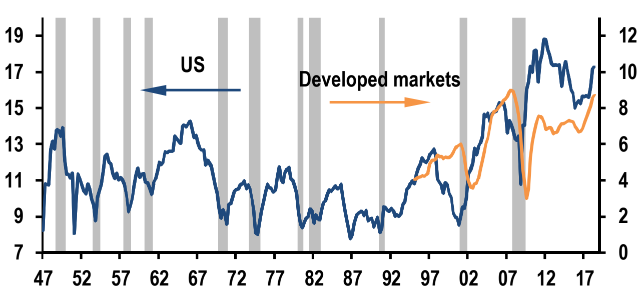
The corporate challenge: Wages vs. pricing and productivity

- **DM profit margins, as measured by the MSCI, reached an expansion high in 2Q18**
- **From here, the life of the expansion will hinge on the underlying drivers of margins**
- **Tight labor markets are pushing up wage inflation, while pricing inflation is more contained**
- **Productivity growth has risen but further gains are not expected, while rising interest rates will be a drag**

As the global expansion moves toward its 10-year anniversary, a race is on between the fundamental forces that drive corporate profit margins. In many ways, the race for profits will have significant bearing on the life of the expansion (see here). A compression in US corporate profit margins has been a reliable indicator that the economy is at risk of slipping into recession. Indeed, the decline in US and developed market (DM) margins that took hold in 2015-16 raised alarms that the expansion might be nearing its end (Figure 1). At the time, we faded this risk as it was caused by a concentrated disinflationary shock emanating from the EM credit slowdown and the commodity price collapse. As these drags proved transitory, profits and profitability rebounded sharply. Based on MSCI data, the DM corporate profit margin has surged to its highest level of the expansion and is now back at the peak hit at the top of the expansion in the 2000s. While the US margin remains below its peak, its recovery has been equally impressive.

Figure 1: Corporate profit margin

%; NIPA after-tax profits/gross value-added %, MSCI earnings/revenue



Source: J.P. Morgan; DM MSCI aggregate is a GDP-weighted average

Despite the strong recovery, margin pressures can be seen on the horizon. Wage inflation is on the rise across the DM in response to tight labor markets. Although the move is modest thus far and being cushioned by a much-needed recovery in DM GDP price inflation, there is little evidence that a material rebound in productivity is taking hold. On balance, the risk is skewed to unit labor costs outpacing gains in pricing power over the coming year. In the event, corporate margins would begin to trend lower—a harbinger that the cycle has entered a late stage.

A framework for decomposing margins

Corporate profitability is measured in terms of the profit margin. The margin is defined as the earnings share of revenue. Earnings (E) can be defined as revenues (PY, where P is the price and Y is real output) less costs, which include labor costs (WH, where W is the wage rate and H is hours worked), other direct and indirect costs of production ($Other$), interest costs (I), and taxes (T). Specifically, the margin (m) is:

$$m \equiv E/PY = 1 - WH/PY - Other/PY - I/PY - T/PY.$$

Note that WH/PY can be rewritten as the ratio of 1) the per-unit relative cost (W/P, wage rate relative to output price) to 2) productivity (Y/H). The change in corporate profitability (Δm) can then be approximated as:

$$\Delta m \approx (\pi - \omega) + \rho - \Delta\theta - \Delta i - \Delta\tau,$$

where π is output price inflation, ω is wage inflation, ρ is labor productivity growth, and $\Delta\theta$, Δi, and $\Delta\tau$ are the change in the other cost, debt service burden, and tax burden each scaled by labor costs, respectively. In terms of measurement, we turn to the MSCI reported profit margin data by country. Our DM aggregate is constructed as a GDP-weighted average (not to be confused with reported MSCI aggregates, which are weighted by market-capitalization).

To assess the health of DM corporate profitability through the lens of the framework above, we regress changes in the DM profit margin on DM price inflation, wage inflation, productivity growth, and changes in the corporate borrowing rate. Regression analysis, as opposed to simply asserting the definition above, allows for slippage in the relationship owing to measurement errors, though it is worth noting that even the definition above fits the actual data remarkably well. The regression model is estimated from 2Q01 to 2Q18.

All estimated model coefficients have the correct sign and accord reasonably well with the framework above (Table 1). The results highlight the key moving parts underlying corporate profitability and reveal their relative impact. The analysis begins with pricing. Firms' ability to generate revenue through its pricing power is central to their profitability. Over the full sample, we find that GDP prices have a better fit than consumer prices as a proxy for corporate price—though both are statistically significant. A 1%-point rise in GDP price inflation increases the DM profit margin by 1.5%-points.

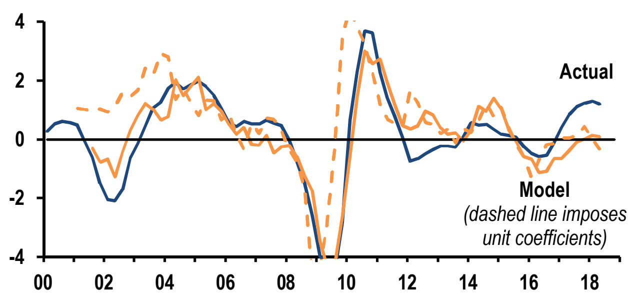
Table 1: Changes in corporate profit margin, Developed markets
All variables are in terms of 4-quarter changes

	Full sample		Pre-GFC	Post-GFC
	2001-18	2001-18	2001-2Q08	2011-2Q18
Constant	1.4	1.0	-1.1	-2.9
	(2.8)	(2.2)	(-0.5)	(-2.8)
CPI	0.3			
	(2.4)			
GDP deflator		1.5	3.1	1.2
		(4.7)	(6.3)	(2.6)
Wages (t-2)	-1.3	-2.0	-2.4	0.6
	(-5.5)	(-7.3)	(-5.2)	(1.2)
Productivity (t-2)	0.9	0.8	0.8	0.7
	(8.0)	(8.0)	(2.5)	(4.3)
Corp yield (t-1)	-0.2	-0.6	-0.8	0.0
	(-1.4)	(-3.9)	(-3.1)	(-0.1)
Adj R-sq	0.71	0.76	0.80	0.49
Std err	0.8	0.8	0.5	0.5

Source: J.P. Morgan; Corporate yield is from the J.P. Morgan JULI

The rest of the profit margin equation relates to costs (wages and debt servicing) and factors that mitigate these costs (productivity). Not surprisingly, wages are a significant drag on profit margins. Over the full sample, a 1%-point rise in wage inflation has been associated with a 2%-point fall in the DM profit margin. This is reduced only partially by a 1%-point rise in productivity growth, which boosts the margin only 0.8%-point on average. This result is at odds with the formulation above, which suggests that profit margins should be driven only by changes in unit labor costs $(\omega - \rho)$, with each having equal weight. Debt servicing costs also are a statistically significant drag on profitability. However, because we do not measure actual levels of debt, we only show that a 1%-point increase in corporate yields has reduced margins on average by 0.6%-point.

Figure 2: Corporate profit margin, Developed markets
%-point, 4 quarter change



Source: J.P. Morgan

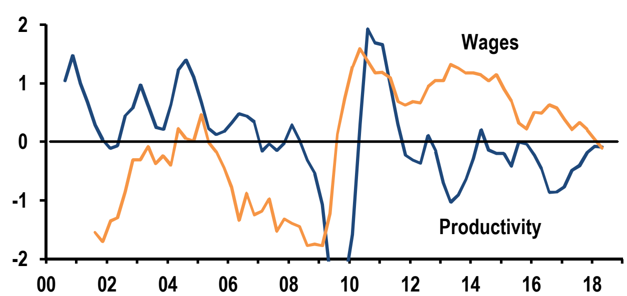
On balance, the full sample model explains nearly 80% of the variation in the 4-quarter change of DM corporate profit margins since 2001 (Table 1, Figure 2). Notably, imposing the unit-coefficients from the definitional framework also fits reasonably well (the dashed line in Figure 2). Essentially, the regression fit increases the impact of both wages and GDP prices (to less than -1 and more than 1, respectively), offsetting each other. The estimated coefficients on productivity growth and changes in interest rates are closer to unity.

Despite the strong fit of the model, the relationship has deteriorated in the current expansion relative to the last expansion (last two columns in Table 1). Indeed, the model fit was particularly strong prior to the GFC, with even larger (and offsetting) betas on pricing and wages. The betas have fallen considerably in the current expansion, with wages turning insignificant—perhaps owing to the fact that wage growth has been muted for so long. Nevertheless, it would likely be a mistake to use the muted nature of the current expansion to rewrite the degree to which fundamentals drive profit margins, particularly when these dynamics are now starting to perk back up. Consequently, our analysis below is based on the full-sample model.

A tale of two margin cycles

The profit margin framework outlined above allows us to weave a rich cyclical narrative for the past two expansions. It also provides a clearer understanding of the risks that lie ahead. The 2000s expansion exhibited a relatively typical pattern whereby, early in the cycle, slack damped wages and boosted productivity growth—providing support for a margin expansion despite weak pricing power (Figures 3 and 4). This dynamic began to reverse after labor markets tightened starting in 2005. Rising wage inflation and weakening productivity growth more than offset the support from rising pricing power, resulting in a decline in margins leading up to the GFC.

Figure 3: Corporate profit margin contributions, Developed markets
%-point, contrib. to 4 quarter change (deviation from mean)



Source: J.P. Morgan

The current expansion is notable in how muted the dynamics in productivity and inflation have been. Extreme economic slack in the first half of the expansion has depressed wage inflation and this has been a huge boost to corporate profitability, despite weak productivity growth and weak pricing power. Based on our model, weak wage inflation has lifted DM profit margins by roughly 1%-point each year from 2010 through 2015 (relative to its mean change since 2000). Even

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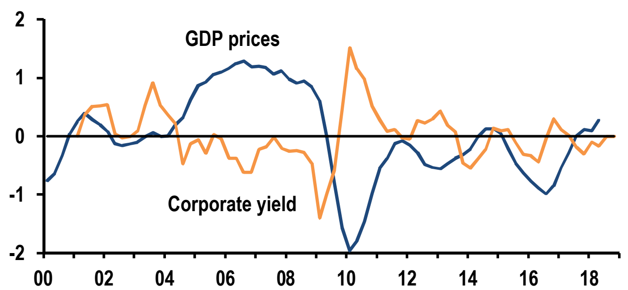
with the acceleration in wage inflation over the past two years, it still has generally been a positive for corporate margin expansion.

Figure 4: Corporate profit margin contributions, Developed markets
%-point, contrib. to 4 quarter change (deviation from mean)

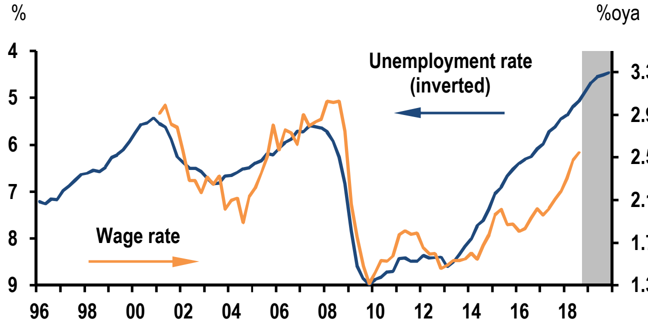


Source: J.P. Morgan; Corporate yield from J.P. Morgan JULI

The race is on

The drivers of profitability in the DM are now at a crossroads. Labor markets are tight according to a wide range of measures, and wage inflation is moving higher. While the level of wage inflation is still a moderate 2.6%oya, the pace of gain appears to be accelerating (Figure 5). Should DM wage inflation continue its ascent and catch up with the pace implied by DM unemployment rates, the DM corporate profit margin could deteriorate by more than a full percentage point over the coming year. For context, a 1%-point decline in the DM profit margin has historically been associated with a 7.3% drop in DM equity market prices.

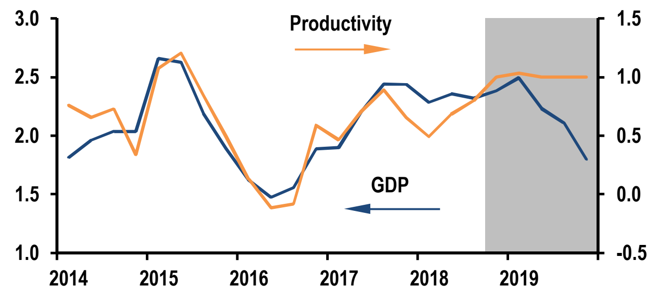
Figure 5: Unemployment and wages, Developed markets



Source: J.P. Morgan

Productivity growth could be an important potential offset to rising labor costs. However, we have written extensively about the worrying decline in global (and DM) productivity growth since the global financial crisis (see here and here). These concerns intensified in 2016 when DM productivity growth slowed to a standstill, amplifying the corporate profits recession and raising the odds of a broader economic recession. Since then, DM productivity growth has recovered but is still running at just 1% annualized—nearly one-half the pace seen in the 1990s and early 2000s. Our forecast assumes productivity growth will at least hold steady at this 1% pace, but even this may be a challenge given the cyclicality it has exhibited in recent years (Figure 6). Should it slip yet again, profitability would not only lose the recent upward momentum, but this could even turn back into a headwind.

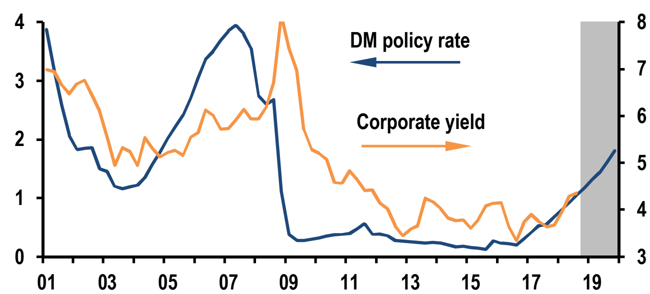
Figure 6: Real GDP and labor productivity, Developed markets
%q/q, saar; both scales



Source: J.P. Morgan

Absent a rise in productivity growth, there is still an opportunity for higher inflation to support margins. However, this too may be constrained given the sluggish pace of underlying core inflation measures across much of the DM. And even if our forecast is right and we see some pickup in GDP price inflation, it is less likely that it keeps pace with the rising pressure on wages.

Figure 7: Policy rate and corporate yield, Developed markets
%pa; both scales



Source: J.P. Morgan; Corporate yield from J.P. Morgan JULI

Adding further to risks of margin compression over the coming, increasing policy rates are likely to boost corporate borrowing rates which in turn would increase debt servicing costs. Corporate borrowing rates already are on the rise. With the Fed continuing to hike rates and major central banks either following or on hold, the direction of the broader interest rate complex is upward (Figure 7). In the event corporate yields track the move up in our DM policy rate forecast (driven almost entirely by our Fed call), corporate yields could increase 100bp through 2019. Based our model (Table 1), this would damp profit margins 0.6%-point.

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