APPENDIX

RICHARD PORTER
11/1/88

INTRODUCTION

This briefing summarizes the memorandum sent to you last week concerning the long-run relationship between M2 and prices. Chairman Greenspan asked us to evaluate M2 as an indicator of longer-run inflation trends, suggesting a framework based on the concept of M2 per unit of potential real output.

Your first exhibit reviews the key concepts and relationships that we have drawn upon in implementing this idea. The top panel of the exhibit displays the **quantity equation** MV = PQ which states that the stock of money M times its income velocity, V, equals the product of prices, P, and real output, Q. If we consider a long-run situation where velocity may be presumed to have settled down to an equilibrium level V* and real output is at its potential level identified as Q*, the quantity equation can be rearranged to determine the long-run price level toward which actual prices are headed, for any given level of the money stock. This long-run price concept, which we call P*, is defined formally in the second panel of the table. The equation states that, in the long run, prices will be proportional to the money stock per unit of potential real GNP, with the proportionality constant given by V*.

From the quantity equation for actual prices and the equation for P*, we can derive an identity for the gap between actual and long-run price levels from the difference

between equation (1) and equation (2). Specifically, the third equation in the bottom panel of the first exhibit states that for the logarithms of the variables, the gap between P and P* is equal to the sum of the output gap, the difference between potential real output Q* and current real output, and the velocity gap, the difference between the current value of velocity and its long-run value V*. If, for example, prices were below their long-run level, this situation would be consistent with the economy running above capacity and/or velocity below its trend. As a result, prices would then be expected to rise to reach their equilibrium level.

Finally, the separate terms on the right hand side of this equation can be identified with different views of the inflation process. The output gap is commonly associated with the expectations-augmented Phillips curve, while the velocity gap, has more of a pure monetarist orientation.

To implement P* empirically we need to select a monetary aggregate with a long-run velocity **level** that can be readily determined. Based on the long-run stability of M2 velocity, V2, shown in exhibit 2, it appears to be much easier to specify a long-run velocity estimate for this aggregate than for any other aggregate. While V2 is sensitive to the movements in its opportunity cost, flexibility in M2 deposit rates tends to stabilize these

costs in the long run. Typically, V2 eventually returns to a level close to its historical average, shown by the longer of the solid lines in this exhibit. One cannot rule out the possibility that the appropriate long-run velocity estimate is lower in the 1980's than it was over earlier decades, as suggested by the shorter line representing the mean for the period from 1982:Q4 to 1988:Q2 in this exhibit. It is possible that the introduction of deregulated accounts such as MMDAs permanently lowered opportunity costs and raised the demand for M2, and, in turn, lowered V*. In our empirical testing we failed to confirm a downward velocity shift, but this represents an area that we are continuing to evaluate. In what follows, we will set V* equal to its longer-run historical average in the construction of long-run prices.

The price level, as measured by the GNP deflator, is plotted with the value of P* in the top panel of the third exhibit, while the year over year rate of inflation is shown in the lower panel of the chart. To be consistent with the econometric work, it is helpful to show the relationship between these two series after a natural log transformation has been applied to them; thus, the plot is drawn on a ratio scale. Eight vertical lines are shown in both panels at the point where the price level crosses the curve for P*.

In general, this chart shows that when the long-run price measure is above the current deflator, inflation will accelerate, and, conversely, it will decelerate when the long-run price measure moves below current prices. The chart also shows that the change in the inflation rate usually lags the change in the gap between P and P*. In the latest episode in which P* rose above the deflator in early 1985, prices have not shown much tendency to increase on a year over year basis, at least through the third quarter of this year. As of that quarter, the level of the GNP deflator would have to increase by 3.5 percent to close the gap between P* and the deflator. In the current quarter, inflation accelerates to 4.1 percent on a 4-quarter basis in the staff Greenbook forecast, and with low money growth projected in the Bluebook to hold down P*, the gap is expected to narrow further to between 2.0 and 2.2 percent.

EMPIRICAL WORK

We now turn to the empirical econometric work which explores the distributed lag relationship between P* and subsequent changes in the deflator. Given the definition of P*, such a relationship will, in turn, determine the lead lag relationship between M2 and prices. The upper panel of the fourth exhibit shows the basic regression structure of the family of models that we have examined. In these models, the change in inflation rate, $\Delta\pi$, is explained by either the difference between p and p* directly, or, more

generally as in the upper panel, by the output and velocity gaps that together determine the difference between p and p*. Setting $\alpha_1 = 0$ yields a velocity gap specification; alternatively, if $\alpha_2 = 0$ in this equation, an output gap model emerges. Constraining the two α coefficients to be the same produces a price gap model since the output and velocity terms sum to the price gap. Statistical tests indicate that the α coefficients can be treated as identical, and so the price gap model -- shown in equation (6) of this exhibit -- best fits the data. It also passes a battery of diagnostic tests designed to detect common kinds of misspecification that frequently arise with economic time series.

The lower panel displays the results from estimating this basic framework over longer time spans, using data averaged over one- and over two-year periods, equations (7) and (8). The results show that the equation has greater explanatory power as the time period over which the variables are being measured is extended. At the two-year frequency the simple price gap equation explains around 71 percent of the variation in the change in inflation.

Because the dependent variable is the change in inflation rather than its level, the dynamic properties of the model as P adjusts to P* are not simple. If, for example, P were above P*, inflation will keep decelerating

until prices equal P*. But when that occurs, the actual inflation rate will be below the rate implied by the movements of P* and, as a consequence, both inflation and the price level will overshoot their equilibrium values. However, the econometric work strongly supports this specification, perhaps reflecting inertia in the inflation process. As a result, inflation rates would not suddenly shift once P equalled P*. One implication of this is that movement of money growth from one straight-line path to another would result in substantial oscillation of inflation around the new equilibrium value.

In the memorandum, we also examined how accurate the various models -- that is, equations using the output, velocity, or the price gaps -- would be in forecasting inflation for periods from one to three years. None of these models produced any appreciable bias. The price gap model generally performed the best and produced the smallest mean absolute and root mean squared errors. Your last exhibit shows Q4 to Q4 forecast results from the price gap model for three different time spans: one year ahead (upper panel), two years ahead (middle panel), and three years ahead (lower panel). The solid line in the table represents the average annualized rate of growth of prices over these various periods, while the diamonds represent the forecasts from the price gap model for the same period. The largest one-year-ahead error made by the model was 2.7 percentage

points in 1974 following the first oil shock in 1973. The specification produced an error of about the same magnitude after the second oil shock in 1979. On balance, over the one to three year periods shown, the price gap model produces reasonably small root mean squared errors averaging in the neighborhood of 1.3 percentage points.

CONCLUSION

In conclusion, there appears to be a relatively simple empirical relationship between P* -- measured as M2 per unit of potential GNP times the long-run value of the velocity of M2 -- and inflation. If P* is above the current price level, prices will tend to accelerate with a lag. If P* is below prices, prices will eventually tend to decelerate. To implement the approach requires that only M2, potential real GNP, and long-run velocity be determined. In particular, we can refrain from forecasting interest rates, exchange rates, fiscal policy, real output and the like. This relationship seems to be relatively robust statistically and to be reasonably accurate as a simple forecasting tool over one-to three-year periods. Finally, it provides a simple framework for keeping track of the relationship between the **stock** of M2 and the price **level**.

Don Kohn will now discuss some policy implications of this analysis.

STRICTLY CONFIDENTIAL (FR) CLASS II–FOMC

Material for

Special FOMC Briefing on M2 Per Unit of Potential GNP As An Indicator of Longer–term Price Trends

November 1, 1988

Exhibit 1

Quantity Equation

(1) $M \cdot V = P \cdot Q = GNP$

M = money
V = income velocity of money
P = GNP deflator
Q = real GNP

Long–Run Price Concept

(2) $P^* = \frac{M \cdot V^*}{Q^*}$

V* = long–run velocity
Q* = real potential GNP

Indentity Between Price, Output, and Velocity Gaps

(3) $(p - p^*) = (q^* - q) + (v - v^*)$

price gap **output gap** **velocity gap**

lower case variables are the logarithms of the upper case variables

Exhibit 2

M2 Velocity

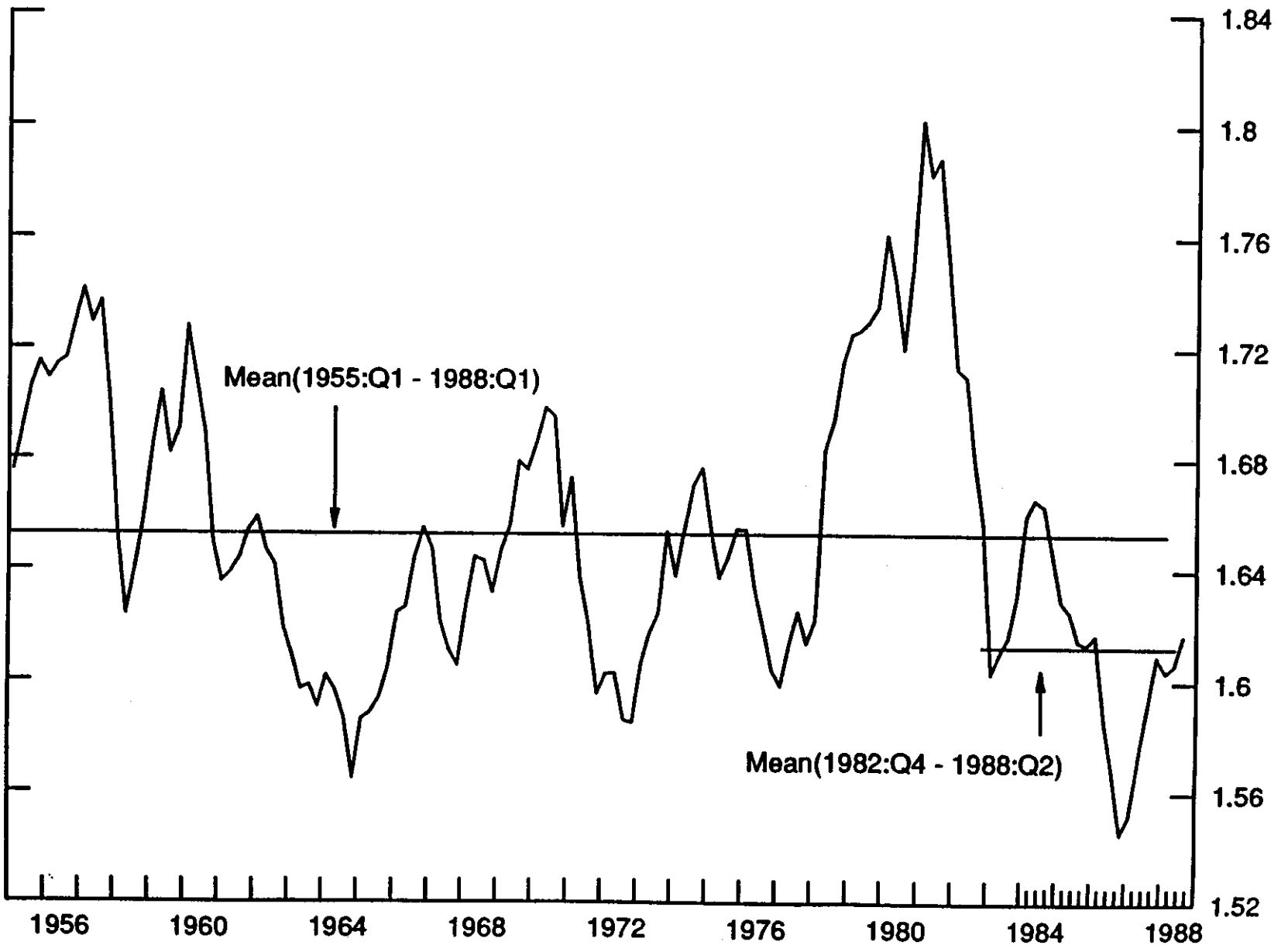
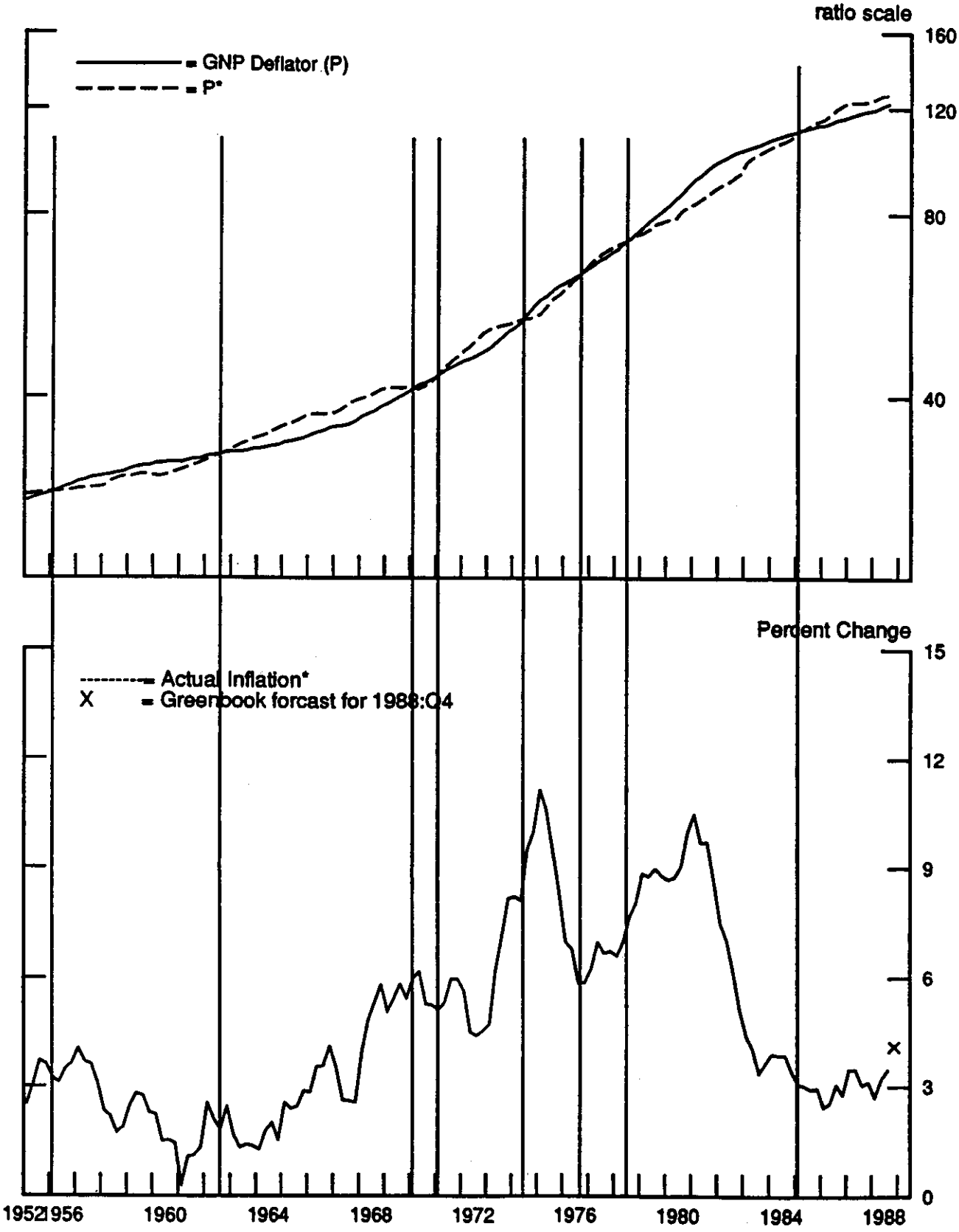


Exhibit 3

Inflation Indicator based on M2 and Board Measure of Potential Real GNP



*Calculated as growth of prices over the previous four quarters.

Exhibit 4

$$(5) \qquad \Delta\pi_t = \alpha_1(q^*_{t-1} - q_{t-1}) + \alpha_2(v_{t-1} - v^*_{t-1}) + \sum_{i=1}^{4} \beta_i \Delta\pi_{t-i}$$

$$\pi_t = \log_e P_t - \log_e P_{t-1}$$
$$\Delta\pi_t = \pi_t - \pi_{t-1}$$

Quarterly data: $\bar{R}^2 = .317$

$$(6) \qquad \Delta\pi_t = -.031(p_{t-1} - p^*_{t-1}) - .653\Delta\pi_{t-1} - .441\Delta\pi_{t-2} - .326\Delta\pi_{t-3} - .116\Delta\pi_{t-4}$$

One-year average data: $\bar{R}^2 = .412$

$$(7) \qquad \Delta\pi_t = -.182(p_{t-1} - p^*_{t-1})$$

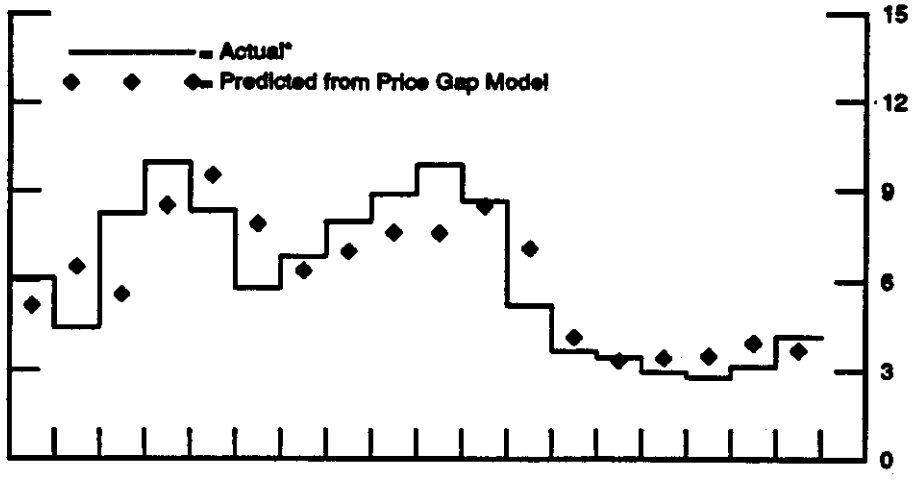
Two-year average data: $\bar{R}^2 = .712$

$$(8) \qquad \Delta\pi_t = -.569(p_{t-1} - p^*_{t-1})$$

Exhibit 5

Annualized Rate of Growth of the GNP Deflator

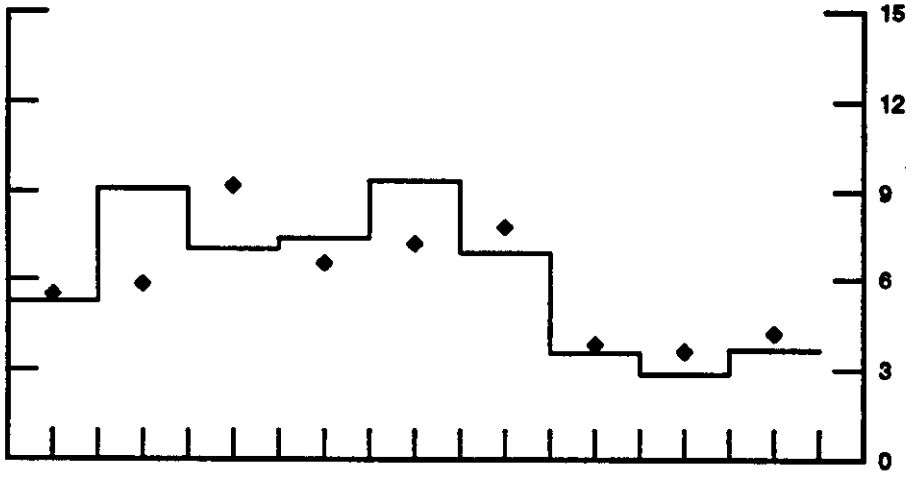
One Year Ahead



Summary Statistics

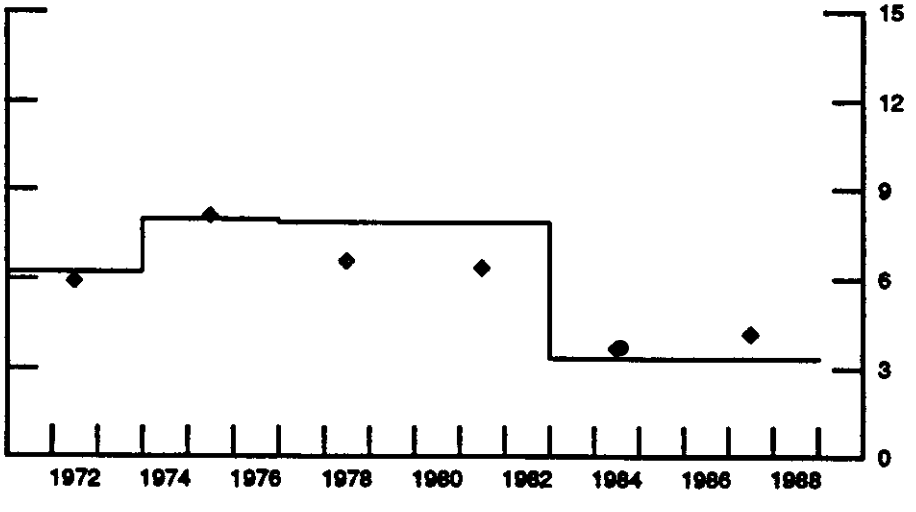
Mean Error	.06
Mean Absolute Error	1.14
Root Mean Squared Error	1.38

Two Years Ahead



Mean Error	.17
Mean Absolute Error	1.23
Root Mean Squared Error	1.58

Three Years Ahead



Mean Error	.31
Mean Absolute Error	.73
Root Mean Squared Error	.90

*Staff forecast of GNP deflator used for 1988:Q4

November 1, 1988

M2 Briefing

Donald L. Kohn

I thought I would conclude with a few thoughts about the implications of this research for policy formulation.

It is tempting to try to use this model for intermediate-term policy analysis and formulation. The model has done reasonably well in one-year ahead inflation forecasts. And right now, the price gap model paints an eerily similar picture to the greenbook forecast. That is, both show current conditions conducive to some pickup in inflation, but under both, moderate money growth next year on the order of 4 percent relieves those pressures to an extent--by bringing p* to just below p in the price gap model, and in the greenbook forecast by raising the unemployment rate slightly to a level thought more consistent with nonaccelerating inflation.

But, just as the greenbook forecasting procedure is sensitive to assesments of underlying demand pressures and Phillips curve-type interactions, the predictions of the price gap model are sensitive to the assumption about the long-run level of velocity. If, for example, deregulation has reduced the long-run level of velocity, the current situation looks somewhat different. With a lower level of velocity, p and p* are already in alignment and 4 percent m2 growth would put noticable downward pressure on inflation. Velocity could rise next year if interest rates went up, but it would be above the new longer-run

level and circumstances would be set for an appreciable subsequent decline in inflation, interest rates, and velocity.

The point is not whether one or another forecast is correct, but rather to highlight the sensitivity of the analysis to the velocity assumption. Over longer periods, small differences in assumed levels of velocity are much less important. And it is in the long-run relationship that I think the analysis is most interesting. The R squares for 2 year forecasts using past values of money are quite high, and the errors in 2 and 3 year ahead simulations are relatively low. It is in these longer simulations that the price gap model out performs the output gap model. In a sense, the price gap model re-establishes an empirical basis for the long-run relationship of money and prices that doesn't rely on a complex structural model and doesn't break down in the 1980's. While most of us have continued to assert that this relationship should prevail over sufficient time, the old specifications that seemed to give reliable guidence through the 1970's had gone badly off track in recent years. Not that the model gives much comfort to those who would guide policy by relatively simple money growth rules, such as constant or gradually declining money growth rates. As Mr. Porter pointed out, especially when the system is shocked or begins in disequilibrium, such rules can result in sizable fluctuations in prices. But it may tend to sharpen the focus on the long-run trends and relationships between growth in important measures of liquidity and changes in the price level.

NOTES FOR FOMC MEETING
November 1, 1988

Sam Y. Cross

At the last FOMC meeting, we reported that the dollar's long summer rally seemed to have either stalled or was ending. Indeed in late September, market sentiment began to turn distinctly negative toward the dollar and it has remained negative ever since: At the peak of the summer rally, the dollar stood at Y 137 against the yen and DM 1.92 against the mark. It is now trading around 7 to 8 percent below these highs.

The upward pressure on the dollar that we were seeing in mid-September reflected several factors. International adjustment seemed to be proceeding, and the substantial narrowing of the U.S. trade deficit announced at that time was an encouraging sign. Also economic growth in the United States appeared to be continuing at a strong pace that could lead to tighter monetary policy and higher interest rates. The market appeared to be looking for the top to the dollar and was testing the authorities' intentions. On several occasions traders had seen the central banks intervening to restrain the dollar's rise against the mark as the dollar approached the DM 1.90 level. But when the G-7 met in West Berlin on the weekend prior to September 26, and submitted a communique which contained no precise reference to the dollar exchange rate, some market participants jumped to an erroneous conclusion that either a new, higher range for the dollar had been established, or that the G-7 could not reach agreement on the desired range. Thus on September 26, the

dollar moved to its highs of the intermeeting period, touching DM 1.89 against the mark and Y 135 against the yen.

On that day, in order to calm and reassure the market, and to show that the G-7 had not changed its exchange market objectives, the central banks intervened in an open and concerted manner. The U.S. authorities initiated this round with sales of $100 million against marks, and the Bundesbank and others quickly followed with dollar sales of their own. The pressures quickly subsided and the dollar eased back. When these operations were followed by statements by various officials that pointed to the economic risks of a further dollar rise, the dollar eased further.

From late September, the dollar has continued to decline, a move prompted by various releases indicating that U.S. economic activity was not expanding as vigorously as had been thought, and suggesting that upward pressure on dollar interest rates might subside. The report in early October of a smaller-than-expected increase in employment, and the more recent report on third quarter GNP contributed to this view. Furthermore, the weakening of oil prices was seen as relatively more beneficial to our major trading partners, especially Japan, than to the United States, and that was a short-term negative for the dollar. Concerns about the pace of our external adjustment also came to the fore, concerns that were heightened when the latest trade figures were released in mid-October showing that the U.S. trade deficit had widened to more than $12 billion in August. All

these developments tended to move the dollar lower over the past month or so.

As the dollar has moved down, its decline against the Japanese yen has become a matter of particular concern. Last summer, when the dollar was rallying, it did not rise nearly as much against the yen as it did against the mark and other currencies. But now that the dollar is falling, it has declined by at least as much against the yen as against the mark and other currencies. Looking at the movements over a longer period of time, today the dollar in terms of the mark is only 2 percent below its level at the time of the Louvre, but in terms of the yen it is 18 percent below the Louvre rate, although there has been much more intervention to support the dollar against the yen than against the mark.

Part of the yen's rise represents a strengthening against all currencies. This strengthening reflects the market's favorable assessment of the Japanese economy's progress in adjusting to its external imbalance and shifting from external to domestic demand -- a record that looks much better than that of Germany and other European surplus countries. It also reflects a market view that Japan is expected to absorb a relatively large share of the total international imbalance.

Given the extent of the dollar's recent fall against the yen, and the concern that at some point it might trigger massive dollar sales and hedging by Japanese institutional investors, the market has been fishing to see what level in the dollar yen would provoke the central banks to respond.

Yesterday, when the dollar fell to 124-1/2 yen, the Bank of Japan intervened, buying and our Desk followed with $200 million, bringing the rate back to 125.65. At present, concerns about central bank intervention seem to be a significant factor in keeping the dollar from sliding further, particularly in this pre-election period. Also interest rate differentials have moved a bit more favorable to the dollar. The Bank of Japan is allowing seasonally slack demand in the Japanese money markets to show through, and this slight easing is relieving upward pressure on the yen, as well as facilitating a move towards more flexible management of domestic markets. In Germany there have also been some changes in the Bundesbank's procedures for supplying liquidity to its domestic money market, but the Bundesbank does not appear to be easing credit even though long-term interest rates have declined. Looking ahead, market sentiment toward the dollar remains negative, as participants assess the prospects of early and forceful action by a new Administration to deal more fundamentally with our budget and trade deficits.

Mr. Chairman, I would like to seek the Committee's approval of our operations during the intermeeting period. We sold $200 million against marks, $100 million on September 22 and $100 million on September 26 to resist upward pressure on the dollar, and yesterday we bought $200 million against the yen, to resist downward pressure on the dollar. Half of the total $400 million was sold on behalf of the Federal Reserve and the other half for Treasury. In other operations, we purchased $500 million equivalent of Japanese yen from

divided equally between the Federal Reserve and the Treasury. Also during the period, the National Bank of Yugoslavia repaid the outstanding $33.8 million of its swap agreement with the U.S. Treasury which was scheduled to mature on November 30, 1988.

I would also like to seek the Committee's approval of renewing the Federal Reserve swap agreements with other central banks and the BIS, all of which mature in December. Aside from some earlier swap drawings by Mexico, these facilities have not been drawn on for several years, by either the Federal Reserve or any of the counterparties, and they cannot be drawn except by reciprocal agreement at the time of a request. Nonetheless it is important to keep these facilities in being in the event of need. I recommend extension for a further period of one year, without substantial change.

NOTES FOR FOMC MEETING
PETER D. STERNLIGHT
NOVEMBER 1, 1988

Since the September 20 meeting of the Committee, the Domestic Desk has sought to maintain about the same reserve pressures sought in the previous intermeeting interval. Where that previous interval was notable for achieving very closely both the expected levels of borrowing and of Federal funds rates, the recent record has been more spotty. Borrowing bulged very sharply at the end of the reserve maintenance period that concluded just as the new intermeeting interval began and that lifted average borrowing in the September 21 reserve period nearly $300 million above the $600 million path level. In the closing days of that reserve period, we had hesitated to add reserves as aggressively as reserve projections suggested might be needed, since the money market was rather comfortable and there was market speculation that policy might be easing.

In the October 5 reserve period, borrowing averaged about $550 million until the final day, when another bulge lifted the full period average to $735 million. The bulge reflected heavy demand for excess reserves and some missed estimates of reserve factors. Meantime, reflecting the tight close of the previous period and quarter-end pressures, the funds rate averaged around 8-5/16 percent in that period as against the 8-1/8 percent average characteristic of the previous intermeeting interval.

With this experience behind us, we sought in the October 19 reserve period to keep up well with reserve needs and even resolve uncertainties a bit on the accommodative side. Borrowing slipped off to an average of about $525 million, but funds stayed toward the high side of their expected range, averaging about 8-1/4 percent.

We've continued in the current reserve period to meet projected reserve needs in a relatively forthcoming manner, seeking to head off some market speculation that the system might be tightening a bit. Borrowing has remained below the $600 million path level, averaging about $415 million through yesterday, but Fed funds have continued to hug the upper end of the expected range, averaging a bit over 8-1/4 percent.

It is not altogether clear why the money market has persisted on the firm side even when nonborrowed reserve targets have been fully met or exceeded. To some extent the end of period bulges in borrowing probably made money center banks more reluctant to use the window. Possibly the decline in seasonal borrowing since late September played a role, and perhaps there were other factors tending to shift reserve distribution in a manner that led to reduced window use.

In any event, it appears that market participants have more or less accepted the idea of a funds rate around 8-1/4 percent, not attributing real policy significance to the change from the earlier 8-1/8 percent level. Some feel that the rate could well drift back again toward 8-1/8, or even 8 percent, without implying much policy significance, while others say that

the recent slightly firmer level might well continue in coming weeks, especially as we enter the year-end period. Given the indications of slower economic growth, fewer voices are heard on the side of expecting further deliberate policy firming in the near term, but neither can one discern any groundswell toward the easier side.

Desk operations during the period continued to concentrate on temporary reserve additions through repurchase agreements -- arranged on all but a few days. Outright holdings were increased by a modest net of about $335 million as bill purchases from foreign accounts were partly offset by small agency redemptions. On one occasion, matched sale-purchase transactions were arranged in the market to absorb reserves.

Interest rates showed mixed changes over the period, edging up about 10 to 20 basis points higher at the short end but declining some 15 to 30 basis points for longer maturities. For short maturities, the firmer money market and related higher financing costs were a factor. For some instruments in the 3-month area the switch to 1989 maturities tended to lift rates. The Treasury auctioned 3- and 6-month bills yesterday at average rates of 7.37 and 7.48 percent compared with 7.17 and 7.34 percent just before the last meeting. While continuing to raise new money in weekly bill issues, the Treasury also redeemed $10 billion of cash management bills on September 22, leading to a net decline of about $3 billion in bills for the period.

The lower rates on longer maturities emerged as market participants saw business news as mainly on the moderating side,

while lower oil prices were also a significant factor. The September employment report in early October was a particular focus of attention. The market was impressed with the downward revision of payroll gains in August as well as the smaller than expected September rise and the consecutive declines in manufacturing payrolls in August and September. Wage gains muted the market's enthusiasm, however. The weaker dollar also was a sobering influence on the market, especially after the large August trade deficit was reported in mid-October. The modest pace of monetary growth got a bit more attention than in recent months, especially after it was noted that the Fed's policy record had moved up the emphasis on this factor a bit. But the impact of money numbers on interest rates remained fairly minor.

Meantime, the bond market paid close attention to the alternately hot and cold prospects for Treasury bond issuance authority wrapped up in the tax technical corrections bill -- with bond prices giving some ground when that bill finally passed at the eleventh hour. Actually some question still remains as to whether the Treasury will be able to include a bond in the financing package to be announced tomorrow, as the enrolled bill has not yet been sent to the White House.

On balance, the market regarded incoming economic data as basically supportive of a steady-as-she-goes policy -- with little reason for further firming near-term and perhaps even less for overt easing steps at this point. Looking further out the time horizon there is probably a bit more anticipation that the need may be for more rather than less restraint as there still is

a sense that current relatively full use of resources will eventually make itself felt in greater price pressures. But these are not generally seen as immediate concerns.

The Treasury raised about $2.3 billion in the coupon area during the period, with bigger increases on deck as a major quarterly financing is to be announced tomorrow. Treasury yields in the 2-year area worked down by about 15 basis points over the interval, leaving those yields a shade under the Fed funds rate. More typically, the 2-year rate might be 25-100 basis points <u>above</u> the funds rate. The long end of the curve also tended to flatten, with long bond yields down about 25-30 basis points, narrowing the 2- to 30-year yield spread to just over 50 basis points.

Looking at other markets, some mention should be made of FICO bonds, for which the spread over Treasury issues tended to narrow over the period despite continuing grim news about the thrift industry. Paradoxically, it appears that the worse the news on this front, the more the market is convinced that a Federal bail-out of some sort will be assured for the thrifts.

Also of note, the corporate market was shaken during the period by reports of large pending "leveraged buy-outs" which could result in massive issuance of corporate debt and perhaps some significant downgrading of previously well-regarded issuer names. At times these developments severely narrowed liquidity in the corporate industrial bond market -- working somewhat to the benefit of agency and even Treasury issues, as well as to

corporate issues deemed less vulnerable to take-over risk -- such as utilities.

Turning to the Desk's dealer relationships, I should mention that on September 29, we added two more firms to the list of primary dealers -- County NatWest and Yamaichi. This brought the total number on the list to 46, an increase of 10 in just the past two years.

This rapid rise after a decade of rough stability in the number of dealers -- much of it, incidentally, in foreign-owned dealers -- has caused us at the New York Fed to undertake a basic review of the criteria for designating primary dealers. We have concluded that several modifications of our approach are in order, and I'd like to note them briefly for the Committee.

Our chief concerns include the rapid rise in the number of firms on the list -- to the point that the value of additional trading relationships to the conduct of Desk business is questionable; our growing discomfort at the way the list is used as a prestigious "good-housekeeping" seal substituting for normal market-based judgments in selecting counterparties; and a sense that the process of striving to meet our market-volume standards sometimes generates 'churning' activity that serves little useful purpose.

In response to these concerns -- though without imagining we can readily solve them all -- we have in mind the following changes:

First, we plan a modest strengthening of our market-making standard, placing more emphasis on quality of

business done and on evidence of ability to operate profitably over time -- and we'll be looking for a primary dealer to do at least 1 percent of total customer business of all the dealers rather than the 3/4 of 1 percent norm used recently;

second, while still emphasizing the need for capital in relation to risk exposure we plan to raise suggested minimum capital from $25 to $50 million -- in effect incorporating what virtually all the dealers have already attained anyway;

third, we plan to add quality of trading performance with the Desk and other customer services to us, as a more explicit criterion in evaluating whether a dealer should remain on the list;

fourth, we plan to set a flexible limit of around 50 on the number of primary dealers, which would mean being more selective as we approach this point and being willing to consider dropping relationships with marginal performers while remaining open to adding well qualified new firms;

fifth, we plan to follow a policy on changes in ownership that makes it very clear that the primary dealer designation is not a readily transferable 'franchise' -- new ownership will have to be evaluated and there will be a strong presumption that the designation will be discontinued, at least temporarily,

when a firm sells just its Government dealer business; and

sixth, with particular reference to foreign ownership, we plan to take account of the recent trade legislation as well as including our previously stated intention to give some weight to "geographic concentrations" in considering changes in the list.

Some of these steps, I think, are quite modest and non-controversial. Others -- including the 'flexible' limit of around 50 firms, the more rigorous look at ownership changes, and our geographical concerns -- could touch more sensitive nerves. Taken together, while not resolving all our concerns, we think these steps can help deal with the pell mell growth in numbers, the sometimes aggressive foreign interest and the difficult situations posed by ownership changes.

We expect to incorporate these changes in a guideline to be shared with the dealer community within the next few weeks, and sent to Committee members before that. The particulars of the change should be considered confidential until the new guideline is distributed to the dealers.

Leeway

Finally, Mr. Chairman, I'd like to request a temporary increase in the normal intermeeting leeway for changes in outright holdings in the System Account. After several months of rather modest growth in our holdings of securities -- in part because reserve needs were met through acquisitions of foreign currency and a rise in extended credit -- big seasonal reserve

needs will catch up with us in the next several weeks. The main factor is expected to be increased currency in circulation, boosted to some extent by higher required reserves. To be on the reasonably safe side I recommend an increase in the usual $6 billion leeway up to $10 billion until the next Committee meeting date.

MICHAEL J. PRELL
NOVEMBER 1, 1988

FOMC BRIEFING

The main innovation in the staff's forecast for this meeting is the change in our assumption about the oil market. In light of the continued inability of OPEC to hold to its production quotas, we are now assuming that oil prices will stay near their recent levels and thus will run $2 to $3 per barrel lower over the coming year than we had them in our September projection. Obviously, this pattern is a far cry from that in 1985-86, when the spot prices fell from $31 to $11. Even so, the projected near-term decline in energy costs could provide the Committee with a little breathing room by temporarily offsetting -- or perhaps I should say, masking -- any underlying tendencies there may be toward a further pickup in overall inflation.

As you know, it is still our assessment that additional policy restraint probably will be needed over the coming year in order to ease pressures on resources sufficiently to turn basic wage and price trends back in a disinflationary direction. However, because energy prices will be damping inflation in the short run, we've built a more gradual interest rate increase into our current forecast. The federal funds rate still rises another point or so, but this occurs over the next year rather than over the next six months, as in our previous projection.

The incoming data since the last meeting have provided some indications that a movement toward a sustainable pace of expansion may be in train. However, just as even a few swallows may not signal the

onset of spring, so must we be careful not to read too much into a few observations in noisy economic time series.

Perhaps looming largest among the recent signs of slowing is the Commerce Department's advance estimate of third-quarter GNP growth. Commerce gauged the increase in output, abstracting from drought effects, at 2-3/4 percent, at an annual rate; this is more than a percentage point below the pace of the second quarter, and more than 3/4 of a point below the pace of the first half as a whole. We read the available information in essentially the same way, but there still are many gaps in the data for the third quarter, and the apparent deceleration certainly can't be said to meet statistical standards of significance at this point.

It is clear that we must look for supporting evidence, if we are to have any confidence that a slowing has in fact occurred. One place to look is in the labor market data. In this regard, it may be noted that the unemployment rate averaged 5-1/2 percent in the third quarter, the same as in the second quarter; given our assessment of the growth trend of potential output, this would imply that real output growth should indeed have been in the vicinity of 2-1/2 percent.

Moreover, looking beyond the quarterly aggregation, the recent monthly labor indicators suggest some moderation in the pace of expansion. Private payrolls increased an average of 120,000 in August and September, as compared with 300,000 per month earlier in the year. Especially striking was the decline in factory jobs. Some other evidence, drawn from household and business surveys, also can be

mustered to support the notion that growth in labor demand may have eased somewhat over the summer.

But, again, I think a note of caution should be sounded. Some of the month-to-month patterns may have been affected by weather conditions or by the strong demand conditions that resulted in less than seasonal plant shutdowns in July and thus smaller than seasonal increases in labor use thereafter. Moreover, claims for unemployment insurance have been running very low in recent weeks, and are a factor leading us to anticipate some bounceback in private employment growth in October.

Similarly, although one can spot signs in the recent monthly expenditure data of a tailing off in the expansion of aggregate demand, these indications, too, must be regarded as rather tentative. Non-auto retail sales were estimated to be flat in nominal terms in the advance report for September. When combined with a drop-off in electricity use and an easing in the pace of motor vehicle sales, this produced the Commerce Department's estimate of a one-half percent decline in total real consumer outlays in September.

The arithmetic of such a low jumping-off point would be that the current quarter is likely to see a decidedly smaller gain in consumer spending than the strong 3-1/2 percent rate registered in the third quarter. On the other hand, when one recognizes the susceptibility of these numbers to subsequent revision, and also their inherent volatility, this arithmetic argument becomes less compelling. All things considered, we have in fact projected a substantial slowing in real consumption growth in the fourth quarter, to an annual rate of

about 2 percent. The slower pace of domestic car sales in the first 20 days of October fits with this outlook.

Another set of data taking on a less robust cast of late is orders for nondefense capital goods. These fell sharply in September, more than reversing a surge in August. However, while the demand for office and computing machines has softened since the spring, new bookings and order backlogs for other equipment have maintained a strong upward trend. At this point, it therefore seems reasonable to expect that real outlays for producers durables will be rising substantially into 1989. In contrast, on the structures side, the outlook looks to be one of gradual decline in investment, owing in part to the expected slide in oil drilling.

The final major area of apparent softening in the monthly figures is merchandise trade. The trade deficit bounced up again in August, prompting some private analysts to express concern that the trend of improvement, which had been very sharp in the first half, may have come to an end. In our view, the data more likely are symptomatic only of a moderation in the rate of improvement, attributable in part to the waning influence of earlier dollar depreciation. We expect that real net exports will be a small but clearly positive contributor to output growth in coming months.

To close out the review of recent developments in private demand, I should mention briefly the picture in the housing market. Housing starts have been essentially flat since the spring, but sales of single-family homes have been relatively brisk of late. With rates on fixed-rate mortgages having dropped noticeably since August, we think

housing demand should remain firm in the near term--rather than being the negative factor we had anticipated previously.

To sum up, our sense is that growth in private final demand probably has moderated, but that it is by no means collapsing. Moreover, inventories appear to be lean on the whole, and no impediment to further expansion in industrial production. Indeed, the leanness of stocks is one factor supporting what will be a significant boost to activity in the current quarter from higher auto assemblies; we've allowed for a substantial shortfall from the manufacturers' aggressive schedules, but car production still accounts for one-half percentage point of the 2-3/4 percent drought-adjusted GNP increase we've forecast.

Looking ahead, we are projecting a gradual deceleration in nonfarm output, with real GNP growth leveling out at around 2 percent, under the influence of further increases in interest rates. On a general analytical level, the case for higher interest rates can be stated fairly simply: in the absence of greater fiscal restraint or a serious inventory overhang, and with the dollar assumed to depreciate moderately, there is no other obvious macro force to push growth below long-run potential and hold it there for a while. We don't believe the lagged effects of the rate increases to date will be sufficient to do the trick.

We continue to think that such a slowing is necessary to fight inflation, even though there have been a few favorable wage and price data of late. In particular, even with due allowance for statistical uncertainties, the employment cost index increases between June and September were smaller for private workers than those in the first half,

and they produced a leveling in the 12-month percent changes. These figures have prompted us to shave a hair more off of our wage forecast than would have been dictated by the energy price effects alone, but the uptrend still is intact and we are looking for a bit of acceleration over the coming year.

A similar -- and related -- upward tilt is visible in our projection of price inflation outside of food and energy. Recent data have presented a mixed picture, with producer prices showing some sizable increases while consumer prices have been buffetted by gyrations in prices for such items as apparel, lodging, and tuition -- all of which are subject to questionable seasonal adjustment. As we noted in the Greenbook, we expect the CPI ex food and energy to rise almost 5 percent next year, versus the 4-1/2 percent rate recorded thus far this year, owing to the general tightness of markets.

One might argue from survey and anecdotal evidence that 4-1/2 to 5 percent inflation is becoming ingrained in peoples' thinking as something of a norm. The publication of monthly indexes in that range produces headlines that inflation remains moderate and is of no concern. If this is the state of psychology, it seems unlikely that we shall see a resumption of the earlier downtrend in inflation without the opening of some greater degree of slack in labor and product markets than we've had in the past year.

E. M. Truman
November 1, 1988

FOMC PRESENTATION -- INTERNATIONAL DEVELOPMENTS

A number of changes have been introduced into the staff's outlook for U.S. external accounts since the September Greenbook. The net result of these changes has been to leave our projection of the nominal U.S. trade and current account deficits at the end of next year essentially unchanged from the previous projection, at annual rates of about $90 billion and $105 billion respectively. However, the projected improvement in real net exports of goods and services and the associated contribution to real GNP over the forecast period have been reduced by about 10 billion 1982 dollars.

The major reason for the discrepancy between the changes in the nominal and real projections is the assumption of lower oil prices, described by Mike Prell, which generates a terms-of-trade gain. Lower oil prices improve the oil trade outlook by about $6 billion in nominal terms. At the same time, the outlook is worsened in real terms by about 4 billion 1982 dollars as a consequence of reduced domestic production and higher domestic consumption of oil induced by lower oil prices.

Our assumption about oil prices is based on a view that following its meeting later this month OPEC will restrain their crude oil production to less than 20 mb/d, compared with production at more than 21 mb/d currently. If output were to remain at the recent rate, we would expect the price of imported petroleum and products to decline to below $10 per barrel,

compared with the $13 per barrel in our forecast. If production were cut to 18.5 mb/d -- still, 1 mb/d higher than in the previous OPEC arrangement on quotas -- the price would be expected to rise above $15 per barrel.

Based on our assessment of recent indicators for the third quarter and in view of lower oil prices, we have raised our forecast for growth in foreign industrial countries by about 1/4 percent for both this year and next year, which tends, other things being equal, to increase demand for our exports. Most of the upward revision was in growth in continental Europe. However, we still believe that growth in the foreign industrial countries as a group will decelerate from about 2-3/4 percent over the four quarters of 1988 to about 2-1/4 percent over the four quarters of next year under the influence of fiscal and, in some countries, monetary restraint.

We have also incorporated into this forecast the lower foreign exchange value of the dollar we have experienced in recent weeks, while leaving the level of the dollar in the fourth quarter next year the same as in the September Greenbook. At the end of 1989, this modification tends to produce a small improvement in our external balances in both nominal and real terms, though the effect essentially would be washed out if we extended our forecast into 1990 with no change in the dollar beyond the end of 1989. I would note, however, that the balance of risks in this forecast may have shifted toward greater downward pressure on the dollar than that projected.

We have made a number of adjustments to the forecast in light of our assessment of recent information. These have had the effect of offsetting some of the positive factors I have just described. We reduced marginally our optimism about the rate of expansion of U.S. exports of business machines because of an apparent slowing of new orders. However, such exports are still expected to increase in real terms at an annual rate of about 30 percent. We also reexamined our outlook for the quantity of non-oil imports, and increased it somewhat especially in the near term.

As noted by Mike Prell, the most significant change in our outlook has been with respect to oil prices. In this connection, it might be helpful to the Committee if I summarized our assessment of the implications for economic policies in foreign industrial countries of lower oil prices, either those in our forecast or even lower prices that might result from a failure of OPEC to restrain production. Our best judgment is that policies abroad are likely to be only marginally affected by lower oil prices.

This judgment is based in part on an assessment of the 1986 experience and involves three considerations. First, the direct effect of lower oil prices on consumer price inflation abroad is small, smaller than in the United States, because production is, in general, less energy-intensive and a larger component of the price of energy is made up of taxes. Thus, the dividend of reduced inflation pressures is lower.

Second, the amount of unutilized capacity abroad is smaller than in 1986. Thus, policy authorities in some countries would be inclined to welcome the anti-inflation dividend. This is especially true in Canada and the United Kingdom. Indeed, in those countries the direct stimulus to domestic demand from lower energy prices may itself be unwelcome and could lead to tighter monetary policies.

Third, with a less inflationary environment, the Bundesbank might be expected to allow somewhat lower nominal interest rates as long as its monetary target is being met; however, the Bundesbank's target has been exceeded for three years in a row, and it is likely that the Bundesbank would want to be sure of making its target before allowing interest rates to decline very much. Such cautious behavior by the Bundesbank is likely to constrain the French authorities.

On the other hand, the Italian authorities might be inclined to follow a somewhat easier fiscal policy or to substitute higher energy taxes at the consumer level for restraint in other areas; the Japanese authorities might ease monetary policy somewhat especially if lower oil prices were accompanied by a significantly stronger yen.

That concludes our report, Mr. Chairman.

November 1, 1988

FOMC Briefing

Donald L. Kohn

In domestic financial markets, as Mr. Sternlight has already recounted, the intermeeting period was marked by sluggish money growth and small net movements in interest rates, which further flattened the yield curve. The slow expansion of the money supply by and large had been an anticipated result of the previous firming of short-term interest rates and opportunity costs. The damping effects of these rate movements are likely to wear off very gradually. M2 growth is expected to pick up slightly in November and December--to around 3 percent under alternative B--and would strengthen modestly further in the first quarter--to around 4 or 4-1/2 percent, at current interest rates.

These relatively slow money growth paths are expected to be consistent with the fairly robust expansion of nominal GNP in the staff forecast. Velocity began to rise sharply in the third quarter in response to the increase in rates beginning in March, and we would expect additional increases in velocity of around 4-1/2 percent at an annual rate in the fourth and first quarters even without a further rise in rates. This reflects the relatively slow process of adjustment to previous increases in market interest rates--both on the part of banks adjusting offering yields on deposits and the public in adjusting its portfolios. In our models, an increase in interest rates continues to reduce money demand and

raise velocity for about six quarters, though by smaller amounts after the second quarter following the rate rise.

Thus a string of very moderate money growth numbers wouldn't necessarily indicate the the economy was weakening or that policy was becoming overly restrictive. Indeed, as has already been discussed, given the underlying demand and price pressures embodied in the greenbook forecast, M2 growth would need to be constrained to around 4 percent in 1989 as part of a monetary policy that would involve further upward movements in interest rates to create conditions conducive to begin damping inflation--or in the parlance of earlier today, to reduce p* to below p. This implies a prolonged period of essentially no growth in real M2--starting in 1987 and lasting at least through 1989 in the staff forecast. This would be unprecedented in recent experience, which generally has encompassed rapid real M2 growth early in the expansion, and sharp declines late in expansion and early in recession as policy tightened. But the M2 path for 1988-89 is associated and consistent with an unprecedented performance of the economy as well in the staff forecast--continued expansion involving relatively sluggish expansion of domestic demand, very near full employment, with little change in inflation.

Even so, M2 growth of only 1-1/2 percent in September and October, somewhat short of projections, together with the flattening yield curve could raise questions about the degree to which policy is restraining the economy. In this regard, it is important to note that the shortfall of money was not in its retail deposit component, but rather in RPs, Eurodollars, and demand deposits. The determination of these components seems to have more to do with how credit flows are channelled through

banks and how businesses decide to pay banks for the various services they receive, than it does with the process of creating and spending national income. While a tendency for M2 growth to run appreciably below 3 percent for some time might raise questions, the recent shortfall was not very large relative to the usual margin of error governing these forecasts.

In addition, the money and yield curve movements since the last FOMC have occurred against a backdrop of a declining dollar, a rising stock market, essentially flat commodity prices ex food and energy and a spate of credit-financed takeover bids--none of which suggests high or rising real interest rates or a shortage of credit or liquidity. It seems evident from the behavior of long-term rates that markets do not anticipate the kind of steady and prolonged policy tightening that is in the staff forecast. This probably reflects both a different assessment of the underlying pressures on the economy and prices and a sense that the FOMC may not take actions to push inflation below the current 4 to 5 percent range embedded in expectations.

In previous expansions, yield curves this flat have not signalled imminent weakness in the economy. For example these spreads prevailed in early 1968 and early 1978--in both cases when policy may have been insufficiently tight to prevent a subsequent pick up in inflation. And, we have had a similar yield curve once before in the current expansion--in 1986--that was followed by two years of strong growth. In that episode, long-term rates were falling, apparently in response to declining oil prices, while monetary policy was following with a lag.

In 1988 we are looking at another decline in oil prices, albeit of considerably smaller proportions, and accompanied by a much more

restrained reaction in bond markets. Even so, the drop in oil prices does raise interesting questions about possible policy adjustments. Lower oil prices bolster demand by raising the real money stock and increasing real disposable income of consumers. Inflation would be lower in the short-run, and over time the reduction in oil prices allows some expansion of aggregate supply. But over the medium-term, the increase in demand would tend to put pressures on productive capacity, which, given the current high level of employment, could raise the risk of higher inflation once the direct effect of lower oil prices wears off. In contrast to 1986, we have little room to take the oil price bonus in higher output. However, if both employees and producers moderate wage and price increases in response to lower oil prices, there could be an opportunity for monetary policy not only to hold the line on prices, but to validate and sustain the temporary decrease in inflation. A policy to accomplish this would seem to call for a lower rate of growth of nominal money supply than otherwise to hold down nominal income growth and prevent a rise in real money balances. It would also entail a cautious approach to validating any tendency for nominal interest rates to rise along a lower trajectory or even to fall in response to the oil price decline. In the staff forecast, as Mike has said, nominal rates are now seen to rise more slowly over 1989, but short-term rates eventually reach about the same levels as in previous forecasts. In effect, this would serve to keep real rates from falling relative to what they otherwise would have been; indeed, real rates may have to be firmer if there is an appreciable effect on final demand from the oil price change.